IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF NEW JERSEY

UNITED STATES OF AMERICA Plaintiff, v. Defendants.

CIVIL ACTION NO. _____

OPERABLE UNIT THREE CONSENT DECREE

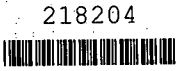


TABLE OF CONTENTS

I. BACKGROUND

A. Contemporaneously with the lodging of this Consent Decree, the United States of America ("United States" or "Plaintiff"), on behalf of the Administrator of the United States Environmental Protection Agency ("EPA"), filed a complaint in this matter pursuant to Sections 106 and 107 of the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA"), 42 U.S.C. §§ 9606, 9607.

B. The United States in its complaint seeks, *inter alia*: (1) reimbursement of costs incurred by EPA and the Department of Justice for response actions at the Scientific Chemical Processing ("SCP") Superfund Site in Carlstadt, Bergen County, New Jersey (the "Site"), together with accrued interest; (2) reimbursement of future costs; and (3) performance of response actions by the Settling Defendants at the Site consistent with the National Contingency Plan, 40 C.F.R. Part 300 (as amended) ("NCP").

C. Throughout the late 1960s and 1970s Inmar Associates, Inc. ("Inmar") or its predecessor corporations held title to some or all of the SCP Carlstadt Property. During the 1960s and 1970s Scientific Chemical Processing Inc. ("SCP") and Scientific Chemical Treatment Company, Inc. ("SCTC"), operated industrial waste handling, treatment, and disposal enterprises at the Site. During the course of business SCP and SCTC disposed of a wide variety of hazardous substances at the Site, which were allegedly generated by a number of companies, including the Settling Defendants. SCTC is now known as Transtech Industries, Inc.

D. Pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, EPA placed the Site on the National Priorities List, set forth at 40 C.F.R. Part 300, Appendix B, by publication in the Federal Register on September 21, 1984, 49 Fed. Reg. 37,070 – 90.

E. Pursuant to 40 C.F.R. § 300.430, in response to a release or a substantial threat of a release of hazardous substances at or from the Site, a Remedial Investigation and Feasibility Study ("RI/FS") for the Site was commenced in 1985. On September 30, 1985, a group of 108 respondents ("108 Respondents) entered into Administrative Order on Consent No. II-CERCLA-50114 pursuant to Section 106 of CERCLA, 42 U.S.C. § 9606. The September 30, 1985 Order required the 108 Respondents to carry out a Remedial Investigation and Feasibility Study ("RI/FS") for the Site pursuant to 40 C.F.R. § 300.430. On October 23, 1985, EPA issued Administrative Order No. II-CERCLA-60102 to 31 additional respondents pursuant to Section 106 directing them to participate and cooperate with the 108 Respondents in performing the RI/FS.

F. The response actions at the Site have been separated into three operable units. Operable Unit One ("OU1") addressed the interim remedy for the contaminated soil and shallow groundwater at the SCP Carlstadt Property ("interim fill area remedy"). Operable Unit Two ("OU2") addresses the final remedy for the contaminated soil and shallow groundwater at the SCP Carlstadt Property ("final fill area remedy") and is governed by a consent decree entered by the U.S. District Court (D.N.J.) in September 2004 for United States v. 3M Company, et al., C.A. No. 2:04-cv-3331(HAA) ("OU2 CD"). On September 27, 2012, EPA issued a Record of Decision relating to Operable Unit Three ("OU3") at the Site. The OU3 remedy addresses groundwater located outside of the boundaries of the SCP Carlstadt Property, as well as

groundwater beneath said property, but deeper than the limits of the OU2 remedy (i.e., below the shallow groundwater). Implementation of the OU3 remedy is controlled by this Consent Decree.

G. Based on the findings of an RI/FS, EPA issued a Record of Decision ("ROD") on September 14, 1990, selecting an interim fill area remedy OU1 that included, *inter alia*, installation of a slurry wall, installation of a shallow groundwater extraction system, off-site disposal of the collected groundwater, and operation and maintenance of the interim fill area remedy.

H. On September 28, 1990, EPA issued Administrative Order No. II-CERCLA-00116 to 43 respondents ("43 Respondents") pursuant to Section 106 of CERCLA requiring them to perform the OU1 remedy. The 43 Respondents completed construction of the OU1 remedy in June 1992.

I. On June 23, 1997, a group of 70 respondents ("70 Respondents") entered into an Administrative Order on Consent No. II-CERCLA-97-0106 pursuant to Section 122(g)(4) of CERCLA, 42 U.S.C. § 9622(g)(4). Under the terms of the June 23, 1997 Order, the 70 Respondents resolved their liability for past and future response costs regarding the Site based on their status as *de minimis* contributors of Waste Material and in exchange for payment of $4,877,194.56 in response costs, including $975,438.91 to the EPA Hazardous Substance Superfund for response costs previously incurred by EPA and $3,901,755.66 to a trust fund maintained under the Order for future work to be performed at the Site.

J. From September 1990 to April 2001 the 43 Respondents carried out further RI/FS activities to identify alternative remedies for the final fill area remedy. The final fill area remedy was designated as OU2.

K. RI/FS activities for OU2 were completed in April 2001. EPA published notice of the completion of the RI/FS for OU2 and of the proposed plan for remedial action for OU2 on August 15, 2001 in a major local newspaper of general circulation. EPA held a public meeting in August 2001. EPA provided an opportunity for written and oral comments from the public on the proposed plan for remedial action.

L. The decision by EPA on the remedial action to be implemented at the Site for OU2 ("OU2 Remedial Action") is embodied in a Record of Decision executed on August 12, 2002 ("OU2 ROD") to which the State of New Jersey ("State") gave its concurrence in a letter dated June 28, 2002.

M. The OU2 remedy was constructed, with EPA oversight, pursuant to the OU2 CD. Design of the OU2 remedy was completed in June 2007, and construction of the OU2 remedy was initiated in April 2008. The OU2 remedy construction included, *inter alia*, excavation of sludge and soil from the hot spot area and disposal at an EPA-approved off-site disposal facility, installation of a cap, replacement of the shallow groundwater recovery system, and replacement of a sheet pile wall to protect the slurry wall. Construction of the OU2 remedy was completed in October 2011. The OU2 remedy includes continued operation of the shallow groundwater recovery system and continued maintenance of, *inter alia*, the cap, the shallow groundwater

recovery system, and the slurry and sheet pile walls. Operation and maintenance with respect to the OU2 remedy, including operation of the OU2 shallow groundwater system, is required by and being performed as an element of the work required under the OU2 CD ("OU2 Work").

N. During July 2012, the defendants that have entered into this Consent Decree ("Settling Defendants"), with oversight from EPA, completed a Remedial Investigation ("RI") Report and Feasibility Study ("FS") Report for OU3.

O. Pursuant to Section 117 of CERCLA, 42 U.S.C. § 9617, EPA published notice of the completion of the OU3 FS and of the proposed plan for remedial action during August 2012, in a major local newspaper of general circulation. EPA provided an opportunity for written and oral comments from the public on the proposed plan for remedial action. A copy of the transcript of the public meeting is available to the public as part of the administrative record upon which the Director of the Emergency and Remedial Response Division ("ERRD") of EPA, Region 2, based the selection of the response action.

P. The decision by EPA on the remedial action to be implemented for OU3 is embodied in a final Record of Decision issued by EPA on September 27, 2012, on which the State has given its concurrence. The ROD includes a responsiveness summary to the public comments. Notice of the final plan was published in accordance with Section 117(b) of CERCLA, 42 U.S.C. § 9617(b).

Q. In accordance with the NCP and Section 121(f)(1)(F) of CERCLA, 42 U.S.C. § 9621(f)(1)(F), EPA notified the State by email dated October 10, 2012, of pending negotiations with potentially responsible parties regarding the implementation of the remedial design and remedial action described in the Record of Decision for OU3 as defined in Paragraph 4 for the Site, and EPA has provided the State with an opportunity to participate in such negotiations and be a party to this Consent Decree.

R. In accordance with Section 122(j)(1) of CERCLA, 42 U.S.C. § 9622(j)(1), EPA notified the United States Department of the Interior and the National Oceanic and Atmospheric Administration on December 17, 2012, of negotiations with potentially responsible parties regarding the release of hazardous substances that may have resulted in injury to the natural resources under federal trusteeship and encouraged the trustees to participate in the negotiation of this Consent Decree.

S. The Settling Defendants do not admit any liability to the Plaintiff or to any other person or entity arising out of the transactions or occurrences alleged in the complaint, nor do they acknowledge that the release or threatened release of hazardous substances at or from the Site constitutes an imminent or substantial endangerment to the public health or welfare or the environment.

T. Based on the information presently available to EPA, EPA believes that the Work (as defined in Paragraph 4) will be properly and promptly conducted by Settling Defendants if conducted in accordance with the requirements of this Consent Decree and its appendices.

U. Solely for the purposes of Section 113(j) of CERCLA, 42 U.S.C. § 9613(j), the Remedial Action set forth in the ROD and the Work to be performed by Settling Defendants

shall constitute a response action taken or ordered by the President for which judicial review shall be limited to the administrative record.

V. The Parties recognize, and the Court by entering this Consent Decree finds, that this Consent Decree has been negotiated by the Parties in good faith and implementation of this Consent Decree will expedite the cleanup of the Site and will avoid prolonged and complicated litigation between the Parties, and that this Consent Decree is fair, reasonable, and in the public interest.

NOW, THEREFORE, it is hereby Ordered, Adjudged, and Decreed:

II. JURISDICTION

1. This Court has jurisdiction over the subject matter of this action pursuant to 28 U.S.C. §§ 1331 and 1345, and 42 U.S.C. §§ 9606, 9607, and 9613(b). This Court also has personal jurisdiction over the Settling Defendants. Settling Defendants waive all objections and defenses that they may have to jurisdiction of the Court or to venue in this District solely for the purposes of this Consent Decree and the underlying complaint. Settling Defendants shall not challenge the terms of this Consent Decree or this Court's jurisdiction to enter and enforce this Consent Decree.

III. PARTIES BOUND

2. This Consent Decree applies to and is binding upon the United States and upon Settling Defendants and their successors and assigns. Any change in ownership or corporate status of a Settling Defendant including, but not limited to, any transfer of assets or real or personal property, shall in no way alter such Settling Defendant's responsibilities under this Consent Decree.

3. Settling Defendants shall provide a copy of this Consent Decree to each contractor hired to perform the Work (as defined below) required by this Consent Decree and to each person representing any Settling Defendant with respect to OU3 or the Work and shall condition all contracts entered into hereunder upon performance of the Work in conformity with the terms of this Consent Decree. Settling Defendants or their contractors shall provide written notice of the Consent Decree to all subcontractors hired to perform any portion of the Work required by this Consent Decree. Settling Defendants shall nonetheless be responsible for ensuring that their contractors and subcontractors perform the Work in accordance with this Consent Decree. With regard to the activities undertaken pursuant to this Consent Decree, each contractor and subcontractor shall be deemed to be in a contractual relationship with Settling Defendants within the meaning of Section 107(b)(3) of CERCLA, 42 U.S.C. § 9607(b)(3).

IV. DEFINITIONS

4. Unless otherwise expressly provided in this Consent Decree, terms used in this Consent Decree that are defined in CERCLA or in regulations promulgated under CERCLA shall have the meaning assigned to them in CERCLA or in such regulations. Whenever terms listed below are used in this Consent Decree or in the appendices attached hereto and incorporated hereunder, the following definitions shall apply solely for purposes of this Consent Decree:

"CERCLA" shall mean the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. § 9601, *et seq.*

"Scientific Chemical Processing Superfund Site Special Account" shall mean the special account, within the EPA Hazardous Substances Superfund, established for the Site by EPA pursuant to Section 122(b)(3) of CERCLA, 42 U.S.C. § 9622(b)(3).

"Consent Decree" shall mean this OU3 Consent Decree and all appendices attached hereto (listed in Section XXVIII). In the event of conflict between this Consent Decree and any appendix, this Consent Decree shall control.

"Day" or "day" shall mean a calendar day unless expressly stated to be a working day. The term "working day" shall mean a day other than a Saturday, Sunday, or federal holiday. In computing any period of time under this Consent Decree, where the last day would fall on a Saturday, Sunday, or federal holiday, the period shall run until the close of business of the next working day.

"Effective Date" shall be the date upon which this Consent Decree is entered by the Court as recorded on the Court docket, or, if the Court instead issues an order approving the Consent Decree, the date such order is recorded on the Court docket.

"EPA" shall mean the United States Environmental Protection Agency and its successor departments, agencies, or instrumentalities.

"Future Oversight Costs" shall mean that portion of Future Response Costs that EPA incurs in monitoring and supervising Settling Defendants' performance of the Work to determine whether such performance is consistent with the requirements of this Consent Decree, including costs incurred in reviewing plans, reports, and other deliverables submitted pursuant to this Consent Decree, as well as costs incurred in overseeing implementation of the Work; however, Future Oversight Costs do not include, *inter alia*: the costs incurred by the United States pursuant to Sections VII (Remedy Review), IX (Access and Institutional Controls), XV (Emergency Response), and Paragraph 47 (Funding for Work Takeover), or the costs incurred by the United States in enforcing the terms of this Consent Decree, including all costs incurred in connection with Dispute Resolution pursuant to Section XIX (Dispute Resolution) and all litigation costs.

"Future Response Costs" shall mean all costs, including, but not limited to, direct and indirect costs, that the United States incurs in reviewing or developing plans, reports and other deliverables submitted pursuant to this Consent Decree, in overseeing implementation of the Work, or otherwise implementing, overseeing, or enforcing this Consent Decree, including, but not limited to, payroll costs, contractor costs, travel costs, laboratory costs, the costs incurred pursuant to Sections VII (Remedy Review), IX (Access and Institutional Controls) (including, but not limited to, the cost of attorney time and any monies paid to secure access and/or to secure, implement, monitor, maintain, or enforce Institutional Controls including, but not limited to, the amount of just compensation), XV (Emergency Response), Paragraph 47 (Funding for Work Takeover), and Section XXIX (Community Relations). Future Response Costs shall also include all Interim Response Costs, and all Interest on those Past Response Costs Settling Defendants have agreed to pay under this Consent Decree that has accrued pursuant to 42 U.S.C. § 9607(a) during the period from December 1, 2012 to the Effective Date.

"Hazardous Substances" or "hazardous substances" shall have the meaning set forth in Section 101(14) of CERCLA, 42 U.S.C. § 9601(14), except with respect to (4) in the definition of Waste Material.

"Institutional Controls" or "ICs" shall mean Proprietary Controls and state or local laws, regulations, ordinances, zoning restrictions, or other governmental controls or notices that: (a) limit land, water, and/or resource use to minimize the potential for human exposure to Waste Material at or in connection with the Site; (b) limit land, water, and/or resource use to implement, ensure non-interference with, or ensure the protectiveness of the Remedial Action; and/or (c) provide information intended to modify or guide human behavior at or in connection with the Site.

"Interim Response Costs" shall mean all costs, including direct and indirect costs, (a) paid by the United States in connection with the Site between December 1, 2012 and the Effective Date, or (b) incurred prior to the Effective Date but paid after that date, except for any such costs reimbursed or reimbursable pursuant to the OU2 CD or the Administrative Settlement Agreement and Order on Consent for Remedial Investigation and Feasibility Study Berry's Creek Study Area, U.S. EPA Index No. II-CERCLA-2008-2011 ("Berry's Creek Study Area RI/FS AOC").

"Interest" shall mean interest at the rate specified for interest on investments of the EPA Hazardous Substance Superfund established by 26 U.S.C. § 9507, compounded annually on October 1 of each year, in accordance with 42 U.S.C. § 9607(a). The applicable rate of interest shall be the rate in effect at the time the interest accrues. The rate of interest is subject to change on October 1 of each year.

"National Contingency Plan" or "NCP" shall mean the National Oil and Hazardous Substances Pollution Contingency Plan promulgated pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, codified at 40 C.F.R. Part 300, and any amendments thereto.

"NJDEP" shall mean the New Jersey Department of Environmental Protection and any successor departments or agencies of the State.

"Operation and Maintenance" or "O&M" shall mean all operation, maintenance, and monitoring activities required for the OU3 Remedial Action to achieve Performance Standards and to maintain the effectiveness of the OU3 Remedial Action, as provided under the Operation and Maintenance Plan approved or developed by EPA pursuant to Section VI (Performance of the Work by Settling Defendants) and the SOW, and maintenance, monitoring, and enforcement of Institutional Controls.

"Operable Unit Three" or "OU3" shall have the meaning set forth in the ROD defined below and attached hereto as Appendix A.

"Paragraph" shall mean a portion of this Consent Decree identified by an Arabic numeral or an upper or lower case letter.

"Parties" shall mean the United States and Settling Defendants.

"Past Response Costs" shall mean all costs, including, but not limited to, direct and indirect costs, that the United States paid at or in connection with the Site from September 4, 2002 through November 30, 2012, plus Interest on all such costs which has accrued pursuant to 42 U.S.C. § 9607(a) through November 30, 2012.

"Peach Island Creek and Migration Areas" or "PICMA" shall mean areas of Peach Island Creek into which hazardous substances have migrated from the SCP Carlstadt Property and any areas to which such hazardous substances have further migrated from Peach Island Creek.

"Performance Standards" shall mean the cleanup standards and other measures of achievement of the goals of the Remedial Action, set forth in the section entitled "Remedial Action Objectives" on pages 12 and 13 of the ROD for OU3, in Section II (Performance Standards) of the SOW, and any modified standards established pursuant to this Consent Decree.

"Plaintiff" shall mean the United States.

"Proprietary Controls" shall mean easements or covenants running with the land that (a) limit land, water or resource use and/or provide access rights and (b) are created pursuant to common law or statutory law by an instrument that is recorded by the owner in the appropriate land records office.

"RCRA" shall mean the Solid Waste Disposal Act, as amended, 42 U.S.C. §§ 6901 *et seq.* (also known as the Resource Conservation and Recovery Act).

"Record of Decision" or "ROD" or "OU3 ROD" shall mean the Record of Decision relating to OU3 at the Site which was signed on September 27, 2012 by the Director, Emergency & Remedial Response Division, EPA Region 2 and all attachments thereto. The ROD is attached as Appendix A.

"Remedial Action" shall mean all activities Settling Defendants are required to perform under the Consent Decree to implement the ROD, in accordance with the SOW, the final Remedial Design and Remedial Action Work Plans, and other plans approved by EPA, including remedial construction, O&M, and implementation of Institutional Controls, until the Performance Standards are met, and excluding performance of the Remedial Design, Post Remediation Monitoring as defined in Section XIII of the SOW, and the activities required under Section XXV (Retention of Records).

"Remedial Action Work Plan(s)" shall mean the document(s) developed pursuant to Paragraph 11 and approved by EPA, and any modifications thereto.

"Remedial Design" shall mean those activities to be undertaken by Settling Defendants to develop the final plans and specifications for the Remedial Action pursuant to the Remedial Design Work Plan.

"Remedial Design Work Plan" shall mean the document developed pursuant to Paragraph 10 and approved by EPA, and any modifications thereto.

"SCP Carlstadt Property" shall mean the real property designated as Block 124, Lots 1, 2, 3, 4, and 5 on the official assessment map of the Borough of Carlstadt, Bergen County, New Jersey, located at 216 Paterson Plank Road, Carlstadt, New Jersey.

"Section" shall mean a portion of this Consent Decree identified by a Roman numeral.

"Settling Defendants" shall mean those parties identified in Appendix E.

"Site" shall mean the Scientific Chemical Processing Superfund Site, encompassing the SCP Carlstadt Property consisting of approximately 5.9 acres located at 216 Paterson Plank Road in Carlstadt, Bergen County, New Jersey, depicted generally on the map attached as Appendix C, and any area into which hazardous substances have migrated therefrom.

"State" shall mean the State of New Jersey.

"Statement of Work" or "SOW" shall mean the statement of work for implementation of the OU3 Remedial Design, Remedial Action, and O&M at the Site, as set forth in Appendix B to this Consent Decree and any modifications made in accordance with this Consent Decree.

"Supervising Contractor" shall mean the principal contractor retained by the Settling Defendants to supervise and direct the implementation of the Work under this Consent Decree.

"Transfer" shall mean to sell, assign, convey, lease, mortgage, or grant a security interest in, or where used as a noun, a sale, assignment, conveyance, or other disposition of any interest by operation of law or otherwise.

"United States" shall mean the United States of America and each department, agency and instrumentality of the United States, including EPA.

"Waste Material" shall mean (1) any "hazardous substance" under Section 101(14) of CERCLA, 42 U.S.C. § 9601(14); (2) any pollutant or contaminant under Section 101(33) of CERCLA, 42 U.S.C. § 9601(33); (3) any "solid waste" under Section 1004(27) of RCRA, 42 U.S.C. § 6903(27); and (4) "hazardous substances" as defined in N.J.S.A. 58:10-23.11b and N.J.A.C. 7:1E-1.6, 1.7 and Appendix A.

"Work" shall mean all activities and obligations Settling Defendants are required to perform under this Consent Decree, except the activities required by Section XXV (Retention of Records).

V. GENERAL PROVISIONS

5. Objectives of the Parties. The objectives of the Parties in entering into this Consent Decree are to protect public health or welfare or the environment by the design and implementation of OU3 response actions at the Site by Settling Defendants, to pay response costs of Plaintiff, and to resolve the claims of Plaintiff against Settling Defendants as provided in this Consent Decree.

6. Commitments by Settling Defendants. Settling Defendants shall finance and perform the Work in accordance with this Consent Decree, the ROD, the SOW, and all work plans and other plans, standards, specifications, and schedules set forth in this Consent Decree or developed by Settling Defendants and approved by EPA pursuant to this Consent Decree. Settling Defendants shall pay the United States for Past Response Costs and Future Response Costs as provided in this Consent Decree.

7. Compliance With Applicable Law. All activities undertaken by Settling Defendants pursuant to this Consent Decree shall be performed in accordance with the requirements of all applicable federal and state laws and regulations. Settling Defendants must also comply with all applicable or relevant and appropriate requirements of all federal and state environmental laws as set forth in the ROD and the SOW. The activities conducted pursuant to this Consent Decree, if approved by EPA, shall be deemed to be consistent with the NCP.

8. Permits.

a. As provided in Section 121(e) of CERCLA, 42 U.S.C. § 9621(e), and Section 300.400(e) of the NCP, no permit shall be required for any portion of the Work conducted entirely on-site (i.e., within the areal extent of contamination or in very close proximity to the contamination and necessary for implementation of the Work). Where any

portion of the Work that is not on-site requires a federal or state permit or approval, Settling Defendants shall submit timely and complete applications and take all other actions necessary to obtain all such permits or approvals.

b. The Settling Defendants may seek relief under the provisions of Section XVIII (Force Majeure) for any delay in the performance of the Work resulting from a failure to obtain, or a delay in obtaining, any permit or approval referenced in Paragraph 8.a and required for the Work, provided that it has submitted timely and complete applications and taken all other actions necessary to obtain all such permits or approvals.

c. This Consent Decree is not, and shall not be construed to be, a permit issued pursuant to any federal or state statute or regulation.

VI. PERFORMANCE OF THE WORK BY SETTLING DEFENDANTS

9. Selection of Supervising Contractor.

a. All aspects of the Work to be performed by Settling Defendants pursuant to Sections VI (Performance of the Work by Settling Defendants), VII (Remedy Review), VIII (Quality Assurance, Sampling and Data Analysis), and XV (Emergency Response) of this Consent Decree shall be under the direction and supervision of the Supervising Contractor, the selection of which shall be subject to disapproval by EPA. Within 10 days after the lodging of this Consent Decree, Settling Defendants shall notify EPA in writing of the name, title, and qualifications of any contractor proposed to be the Supervising Contractor. EPA will issue a notice of disapproval or an authorization to proceed regarding the hiring of the proposed contractor. If at any time thereafter, Settling Defendants propose to change a Supervising Contractor, Settling Defendants shall give such notice to EPA and must obtain an authorization to proceed from EPA before the new Supervising Contractor performs, directs, or supervises any Work under this Consent Decree.

b. If EPA disapproves a proposed Supervising Contractor, EPA will notify Settling Defendants in writing. Settling Defendants shall submit to EPA a list of contractors, including the qualifications of each contractor, that would be acceptable to them within 30 days of receipt of EPA's disapproval of the contractor previously proposed. EPA will provide written notice of the names of any contractor(s) that it disapproves and an authorization to proceed with respect to any of the other contractors. Settling Defendants may select any contractor from that list that is not disapproved and shall notify EPA of the name of the contractor selected within 21 days of EPA's authorization to proceed.

c. If EPA fails to provide written notice of its authorization to proceed or disapproval as provided in this Paragraph and this failure prevents Settling Defendants from meeting one or more deadlines in a plan approved by EPA pursuant to this Consent Decree, Settling Defendants may seek relief under Section XVIII (Force Majeure).

10. Remedial Design

a. Within 60 days after EPA's issuance of a written authorization to proceed pursuant to Paragraph 9, Settling Defendants shall submit to EPA and the State a work plan for the design of the OU3 Remedial Action at the Site ("Remedial Design Work Plan" or "RD Work Plan"). The Remedial Design Work Plan shall provide for design of the remedy set forth in the ROD, in accordance with the SOW and for achievement of the Performance Standards and other

requirements set forth in the ROD, this Consent Decree, and/or the SOW. Upon its approval by EPA, the Remedial Design Work Plan shall be incorporated into and enforceable under this Consent Decree. Within 60 days after EPA's issuance of an authorization to proceed under Paragraph 9, Settling Defendants shall submit to EPA and the State a Health and Safety Plan for field design activities which conforms to the applicable Occupational Safety and Health Administration and EPA requirements including, but not limited to, 29 C.F.R. § 1910.120.

b. The Remedial Design Work Plan shall include plans and schedules for implementation of all remedial design and pre-design tasks identified in the SOW, including, but not limited to, plans and schedules for the completion of: (1) Pre-Design Investigation Report(s); (2) Preliminary Remedial Design Report(s) (35% completion); (3) Draft Final Remedial Design Report(s); (4) Final Remedial Design Report(s); (5) a plan for obtaining access; (6) a plan for establishing Institutional Controls; and (7) a plan for the performance of air monitoring, if necessary, during construction activities at the Site. The RD Work Plan shall also include a Quality Assurance /Quality Project Plan ("QAPP"), in accordance with Section VIII (Quality Assurance, Sampling, and Data Analysis), and Pre-Design Investigation Plan(s).

c. Upon written approval of the Remedial Design Work Plan by EPA, after a reasonable opportunity for review and comment by the State, and submission of the Health and Safety Plan for all field activities to EPA and the State, Settling Defendants shall implement the Remedial Design Work Plan. Settling Defendants shall submit to EPA and the State all plans, reports, and other deliverables required under the approved Remedial Design Work Plan in accordance with the approved schedule for review and approval pursuant to Section XI (EPA Approval of Plans and Other Submissions). Unless otherwise directed by EPA, Settling Defendants shall not commence further OU3 Remedial Design activities at the Site prior to EPA approval of the Remedial Design Work Plan.

11. Remedial Action.

a. Within 90 days after the approval of each of the Final Remedial Design Report(s), Settling Defendants shall submit to EPA and the State work plan(s) for the performance of the OU3 Remedial Action at the Site ("Remedial Action Work Plan(s)"). The Remedial Action Work Plan(s) shall provide for construction and implementation of the remedy set forth in the ROD and achievement of the Performance Standards, in accordance with this Consent Decree, the ROD, the SOW, and the design plans and specifications developed in accordance with the Remedial Design Work Plan and approved by EPA. The Remedial Action Work Plan(s) shall include plans and schedules for implementation of all remedial action tasks identified in the SOW. Upon approval by EPA, the Remedial Action Work Plan(s) shall be incorporated into and enforceable under this Consent Decree. At the same time as they submit the Remedial Action Work Plan(s), Settling Defendants shall submit to EPA and the State a Health and Safety Plan for field activities required by the Remedial Action Work Plan which conforms to the applicable Occupational Safety and Health Administration and EPA requirements including, but not limited to, 29 C.F.R. § 1910.120.

b. Upon approval of each of the Remedial Action Work Plan(s) by EPA after a reasonable opportunity for review and comment by the State, Settling Defendants shall implement the activities required under the Remedial Action Work Plan. Settling Defendants shall submit to EPA and the State all reports and other deliverables required under the approved Remedial Action Work Plan in accordance with the approved schedule for review and approval

pursuant to Section XI (EPA Approval of Plans and Other Submissions). Unless otherwise directed by EPA, Settling Defendants shall not commence physical Remedial Action activities at the Site prior to approval of the Remedial Action Work Plan.

c. Settling Defendants shall submit Operation and Maintenance Plan(s) as provided in Section X.D of the SOW and a Post Remediation Monitoring Plan as provided in Section XIII.A of the SOW, for review and approval pursuant to Section XI of the Consent Decree. Upon approval by EPA thereof, Settling Defendants shall implement such plans and such plans shall be incorporated into and enforceable under this Consent Decree.

12. Settling Defendants shall continue to implement the Remedial Action until the Performance Standards are achieved as provided in Section XII.A. and XIII.A.1 of the SOW. Settling Defendants shall implement O&M and monitoring for so long thereafter as is required by this Consent Decree.

13. Modification of SOW or Related Work Plans.

a. If EPA determines that it is necessary to modify the work specified in the SOW and/or in work plans developed pursuant to the SOW to achieve and maintain the Performance Standards or to carry out and maintain the effectiveness of the remedy set forth in the ROD, and such modification is consistent with the scope of the remedy set forth in the ROD, then EPA may issue such modification in writing and shall notify Settling Defendants of such modification. For the purposes of this Paragraph and Paragraphs 49.a (Completion of Construction and Initial Operation of the Remedial Action), 49.b (Completion of the Remedial Action), and 49.c (Completion of the Work) only, the "scope of the remedy set forth in the ROD" is: (1) Treatment of contaminated off-property and deep groundwater using in-situ treatment technologies through the injection of a substance or substances into the groundwater to cause or enhance the breakdown of the contaminants of concern to less toxic forms; (2) Monitored natural attenuation both during and after active treatment; and (3) Institutional controls to assure that the remedy remains protective until cleanup goals are achieved. If Settling Defendants object to the modification they may, within 30 days after EPA's notification, seek dispute resolution under Paragraph 67 (Record Review).

b. The SOW and/or related work plans shall be modified: (i) in accordance with the modification issued by EPA; or (ii) if Settling Defendants invoke dispute resolution, in accordance with the final resolution of the dispute. The modification shall be incorporated into and enforceable under this Consent Decree, and Settling Defendants shall implement all work required by such modification. Settling Defendants shall incorporate the modification into the Remedial Design or Remedial Action Work Plan(s) or other plans under Paragraph 10 or 11, as appropriate.

c. Nothing in this Paragraph shall be construed to limit EPA's authority to require performance of further response actions as otherwise provided in this Consent Decree.

14. Nothing in this Consent Decree, the SOW, or the Remedial Design or Remedial Action Work Plans or O&M Plan constitutes a warranty or representation of any kind by Plaintiff that compliance with the work requirements set forth in the SOW and the Work plans will achieve the Performance Standards.

15. Off-Site Shipment of Waste Material.

a. Settling Defendants may ship Waste Material from the Site in connection with the Work, the SCP Carlstadt Property, OU3, or the Consent Decree to an off-Site facility only if they verify, prior to shipment, that the off-Site facility is operating in compliance with the requirements of Section 121(d)(3) of CERCLA, 42 U.S.C. § 9621(d)(3), and 40 C.F.R. § 300.440, by obtaining a determination from EPA that the proposed receiving facility is operating in compliance with 42 U.S.C. § 9621(d)(3) and 40 C.F.R. § 300.440.

b. Settling Defendants may ship Waste Material from the Site in connection with the Work, the SCP Carlstadt Property, OU3, or the Consent Decree to an out-of-state waste management facility only if, prior to shipment, they provide written notice to the appropriate state environmental official in the receiving facility's state and to the EPA Project Coordinator. However, this notice requirement shall not apply to any off-Site shipment that does not exceed 10 cubic yards so long as the total volume of said shipment added to the total volume of all such shipments made pursuant to this Consent Decree and prior to said shipment will not exceed 10 cubic yards. The written notice shall include the following information, if available: (i) the name and location of the receiving facility: (ii) the type and quantity of Waste Material to be shipped; (iii) the schedule for the shipment; and (iv) the method of transportation. Settling Defendants also shall notify the state environmental official referenced above and the EPA Project Coordinator of any major changes in the shipment plan, such as a decision to ship the Waste Material to a different out-of-state facility. Settling Defendants shall provide the written notice after the award of the contract for Remedial Action construction and before the Waste Material is shipped.

VII. REMEDY REVIEW

16. Periodic Review. Settling Defendants shall conduct any studies and investigations that EPA requests in order to permit EPA to conduct reviews of whether the Remedial Action is protective of human health and the environment at least every five years as required by Section 121 (c) of CERCLA , 42 U.S.C. § 9621(c), and any applicable regulations.

17. EPA Selection of Further Response Actions. If EPA determines, at any time, that the Remedial Action is not protective of human health and the environment, EPA may select further response actions for the Site in accordance with the requirements of CERCLA and the NCP.

18. Opportunity To Comment. Settling Defendants and, if required by Sections 113(k)(2) or 117 of CERCLA, 42 U.S.C. § 9613(k)(2) or 9617, the public, will be provided with an opportunity to comment on any further response actions proposed by EPA as a result of the review conducted pursuant to Section 121(c) of CERCLA and to submit written comments for the record during the comment period.

19. Settling Defendants' Obligation To Perform Further Response Actions. If EPA determines that the Remedial Action is not protective of human health and the environment pursuant to Paragraph 17, EPA may require Settling Defendants to undertake such further response actions as EPA determines are necessary. Settling Defendants may invoke the procedures set forth in Section XIX (Dispute Resolution) to dispute (1) EPA's determination that the Remedial Action is not protective of human health and the environment, and (2) EPA's selection of the further response actions. Disputes pertaining to whether the Remedial Action is

protective or to EPA's selection of further response actions shall be resolved pursuant to Paragraph 67 (Record Review).

20. Submission of Plans. If Settling Defendants are required to perform further response actions pursuant to Paragraph 19, they shall submit a plan for such response action to EPA for approval in accordance with the procedures of Section VI (Performance of the Work by Settling Defendants). Settling Defendants shall implement the approved plan in accordance with this Consent Decree.

VIII. Quality Assurance, Sampling, and Data Analysis

21. Quality Assurance.

a. In accordance with this Consent Decree and the SOW, Settling Defendants shall use quality assurance, quality control, and chain of custody procedures for all design, compliance, and monitoring samples in accordance with the Uniform Federal Policy for Quality Assurance Project Plans (UFP-QAPP), Parts 1, 2, and 3, EPA-505-B-04-900A, B and C, March 2005 or newer, and other guidance documents referenced in the aforementioned guidance documents. The UFP documents may be found at: http://www.epa.gov/fedfac/pdf/ufp_qapp_v1_0305.pdf. In addition, the guidance and procedures located in the EPA Region 2 DESA/HWSB web site: http://www.epa.gov/region02/qa/documents.htm, as well as other OSWER directives and EPA Region 2 policies, should be followed, as appropriate. Subsequent amendments to such guidance documents, upon notification by EPA to the Settling Defendants, shall apply only to procedures conducted after such notification.

b. Prior to the commencement of any monitoring project under this Consent Decree, Settling Defendants shall submit to EPA for approval, after a reasonable opportunity for review and comment by the State, a Quality Assurance Project Plan ("QAPP") that is consistent with the SOW, the NCP, and applicable guidance documents. If relevant to the proceeding, the Parties agree that validated sampling data generated in accordance with the QAPP(s) and reviewed and approved by EPA shall be admissible as evidence, without objection, in any proceeding under this Consent Decree. Settling Defendants shall ensure that EPA personnel and its authorized representatives are allowed access at reasonable times to all laboratories utilized by Settling Defendants in implementing this Consent Decree. In addition, Settling Defendants shall ensure that such laboratories shall analyze any samples submitted by EPA pursuant to the approved QAPP for quality assurance monitoring. Settling Defendants shall ensure that the laboratories it utilizes for the analysis of samples taken pursuant to this Consent Decree perform all analyses according to accepted EPA methods. Accepted EPA methods consist of those methods which are documented in the "USEPA Contract Lab Program Statement of Work for Inorganic Analysis, ILM05.4" and the "USEPA Contract Lab Program Statement of Work for Organic Analysis, SOM01.2," and any amendments made thereto during the course of the implementation of this Consent Decree; however, upon approval by EPA, after an opportunity for review and comment by the State, Settling Defendants may use other analytical methods that are determined to be acceptable by EPA in the approved QAPP for the type of site-specific sampling involved . Settling Defendants shall ensure that all laboratories they use for analysis of samples taken pursuant to this Consent Decree participate in an EPA or EPA-equivalent quality assurance/quality control ("QA/QC") program. Settling Defendants shall use only

laboratories that have a documented Quality System that complies with ANSI/ASQC E4-1994, "Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs" (American National Standard, January 5, 1995), and "EPA Requirements for Quality Management Plans (QA/R-2)" (EPA/240/B-01/002, March 2001, reissued May 2006) or equivalent documentation as determined by EPA. EPA may consider laboratories accredited under the National Environmental Laboratory Accreditation Program ("NELAP") as meeting the Quality System requirements. Settling Defendants shall ensure that all field methodologies utilized in collecting samples for subsequent analysis pursuant to this Consent Decree will be conducted in accordance with the procedures set forth in the QAPP approved by EPA.

22. Upon request, the Settling Defendants shall allow split or duplicate samples to be taken by EPA or its authorized representatives. Settling Defendants shall notify EPA not less than 16 days in advance of any sample collection activity unless shorter notice is agreed to by EPA. In addition, EPA shall have the right to take any additional samples that EPA deem necessary. Upon request, EPA shall allow the Settling Defendants to take split or duplicate samples of any samples it takes as part of Plaintiff's oversight of Settling Defendants' implementation of the Work.

23. Settling Defendants shall submit to EPA two copies of the results of all validated sampling and analysis, as well as two copies of the results of all other tests or other data obtained or generated by or on behalf of Settling Defendants with respect to OU3 and/or the implementation of this Consent Decree, unless EPA agrees otherwise. Upon request from EPA, Settling Defendants shall also submit to EPA unvalidated sampling data.

24. Notwithstanding any provision of this Consent Decree, the United States hereby retains all of its information gathering and inspection authorities and rights, including enforcement actions related thereto, under CERCLA, RCRA and any other applicable statutes or regulations.

IX. ACCESS AND INSTITUTIONAL CONTROLS

25. If the SCP Carlstadt Property, or any other real property where access or land/water use restrictions are needed, is owned or controlled by any of Settling Defendants:

a. such Settling Defendant(s) shall, commencing on the date of lodging of this Consent Decree, provide the United States, the State, and the other Settling Defendants, and their representatives, contractors, and subcontractors, with access at all reasonable times to the SCP Carlstadt Property, or such other real property, for the purpose of conducting any activity related to this Consent Decree including, but not limited to, the following activities:

(1) Monitoring the Work;

(2) Verifying any data or information submitted to the United States ;

(3) Conducting investigations relating to contamination at or near the Site;

(4) Obtaining samples;

(5) Assessing the need for, planning, or implementing additional response actions at or near the Site;

(6) Assessing implementation of quality assurance and quality control practices as defined in the approved Quality Assurance Project Plans;

(7) Implementing the Work pursuant to the conditions set forth in Paragraph 87 (Work Takeover);

(8) Inspecting and copying records, operating logs, contracts, or other documents maintained or generated by Settling Defendants or their agents, consistent with Section XXIV (Access to Information);

(9) Assessing Settling Defendants' compliance with this Consent Decree;

(10) Determining whether the Site or other real property is being used in a manner that is prohibited or restricted, or that may need to be prohibited or restricted under this Consent Decree; and

(11) Implementing, monitoring, maintaining, reporting on, and enforcing any Institutional Controls.

b. commencing on the date of lodging of this Consent Decree, such Settling Defendant(s) shall not use the SCP Carlstadt Property, or such other real property, in any manner that EPA determines will pose an unacceptable risk to human health or to the environment due to exposure to Waste Materials or interfere with or adversely affect the implementation, integrity, or protectiveness of the Remedial Action (including O&M) or post remediation monitoring.

c. such Settling Defendants shall:

(1) upon request by EPA, execute and record in the appropriate land records office Proprietary Controls that: (i) grant a right of access to conduct any activity regarding the Consent Decree including, but not limited to, those activities listed in Paragraph 25.a; and (ii) grant the right to enforce the land/water use restrictions set forth in Paragraph 25.b, including, without limitation, any Classification Exception Area ("CEA") and/or Well Restriction Area ("WRA") restrictions. The Proprietary Controls shall be granted to one or more of the following persons, as determined by EPA: (i) the United States, on behalf of EPA, and its representatives; (ii) the State and its representatives; (iii) the other Settling Defendants and their representatives; and/or (iv) other appropriate grantees. The Proprietary Controls, other than those granted to the United States, shall include a designation that EPA and the State are "third-party beneficiaries," allowing EPA and the State to maintain the right to enforce the Proprietary Controls without acquiring an interest in real property. If any Proprietary Controls are granted to any Settling Defendants pursuant to this Paragraph 25.c(1), then such Settling Defendants shall monitor, maintain, report on, and enforce such Proprietary Controls.

(2) within 120 days of the request by EPA, submit to EPA for review and approval regarding such real property: (i) draft Proprietary Controls that are enforceable under state law; and (ii) a current title insurance commitment or other evidence of title acceptable to EPA, which shows title to the land affected by the Proprietary Controls to be free and clear of all prior liens and encumbrances (except when EPA waives the release or subordination of such prior liens or encumbrances or when, despite best efforts, Settling Defendants are unable to obtain release or subordination of such prior liens or encumbrances).

(3) within 15 days of EPA's approval and acceptance of the Proprietary Controls and the title evidence, update the title search and, if it is determined that nothing has occurred since the effective date of the commitment, or other title evidence, to affect the title adversely, submit the Proprietary Controls to the appropriate land records office for recording and provide EPA with a copy of the submission and the updated title search. Within 15 days of receipt of confirmation of recording of the Proprietary Controls, such Settling Defendants shall provide EPA with a final title insurance policy, or other final evidence of title acceptable to EPA, and a certified copy of the original recorded Proprietary Controls showing the clerk's recording stamps. If the Proprietary Controls are to be conveyed to the United States, the Proprietary Controls and title evidence (including final title evidence) shall be prepared in accordance with the U.S. Department of Justice Title Standards 2001, and approval of the sufficiency of title shall be obtained as required by 40 U.S.C. § 3111.

26. If the SCP Carlstadt Property, or any other real property where access and/or land/water use restrictions are needed, is owned or controlled by persons other than Settling Defendants, Settling Defendants shall use best efforts to secure from such persons:

a. an agreement to provide access thereto for the United States and the State, and the Settling Defendants, as well as their representatives, contractors, and subcontractors, for the purpose of conducting any activity related to this Consent Decree including, but not limited to, those activities listed in Paragraph 25.a;

b. an agreement, enforceable by Settling Defendants and the United States, to refrain from using the SCP Carlstadt Property, or such other real property, in any manner that EPA determines will pose an unacceptable risk to human health or to the environment due to exposure to Waste Materials or interfere with or adversely affect the implementation, integrity, or protectiveness of the Remedial Action; and

c. (1) upon request by EPA, the execution and recordation in the appropriate land records office of Proprietary Controls, that grant (i) a right of access to conduct any activity regarding the Consent Decree including, but not limited to, those activities listed in Paragraph 25.a and 26.a, and (ii) grant the right to enforce land/water use restrictions set forth in Paragraph 25.b and 26.b, including, without limitation, CEA and WRA restrictions.

(2) The Proprietary Controls shall be granted to one or more of the following persons, as determined by EPA: (i) the United States, on behalf of EPA, and its representatives; (ii) the State and its representatives; (iii) Settling Defendants and their representatives; and/or (iv) other appropriate grantees. The Proprietary Controls, other than those granted to the United States, shall include a designation that EPA and the State are "third-party beneficiaries," allowing EPA and the State to maintain the right to enforce the Proprietary Controls without acquiring an interest in real property. If any Proprietary Controls are granted to Settling Defendants pursuant to this Paragraph 26.c, then Settling Defendants shall monitor, maintain, report on, and enforce such Proprietary Controls.

(3) within 120 days of the request by EPA, Settling Defendants shall submit to EPA for review and approval regarding such real property: (i) draft Proprietary Controls that are enforceable under state law; and (ii) a current title insurance commitment or other evidence of title acceptable to EPA, which shows title to the land affected by the Proprietary Controls to be free and clear of all prior liens and encumbrances (except when EPA

waives the release or subordination of such prior liens or encumbrances or when, despite best efforts, Settling Defendants are unable to obtain release or subordination of such prior liens or encumbrances).

(4) within 15 days of EPA's approval and acceptance of the Proprietary Controls and the title evidence, Settling Defendants shall update the title search and, if it is determined that nothing has occurred since the effective date of the commitment, or other title evidence, to affect the title adversely, submit the Proprietary Controls to the appropriate land records office for recording and provide EPA with a copy of the submission and the updated title search. Within 15 days of receipt of confirmation of recording of the Proprietary Controls, Settling Defendants shall provide EPA with a final title insurance policy, or other final evidence of title acceptable to EPA, and a certified copy of the original recorded Proprietary Controls showing the clerk's recording stamps. If the Proprietary Controls are to be conveyed to the United States, the Proprietary Controls and title evidence (including final title evidence) shall be prepared in accordance with the U.S. Department of Justice Title Standards 2001, and approval of the sufficiency of title shall be obtained as required by 40 U.S.C. § 3111.

27. For purposes of Paragraphs 25 and 26, "best efforts" includes the payment of reasonable sums of money to obtain access, an agreement to restrict land/water use, Proprietary Controls, and/or an agreement to release or subordinate a prior lien or encumbrance. If, within 90 days of a request by EPA, Settling Defendants have not: (a) obtained agreements to provide access, restrict land/water use or record Proprietary Controls, as required by Paragraph 26.a, 26.b, or 26.c; or (b) obtained, pursuant to Paragraph 25.c(2) or 26.c(3), agreements from the holders of prior liens or encumbrances to release or subordinate such liens or encumbrances to the Proprietary Controls, Settling Defendants shall promptly notify the United States in writing, and shall include in that notification a summary of the steps that Settling Defendants have taken to attempt to comply with Paragraph 25 or 26. The United States may, as it deems appropriate, assist Settling Defendants in obtaining access, agreements to restrict land/water use, Proprietary Controls, and/or the release or subordination of a prior lien or encumbrance. Settling Defendants shall reimburse the United States under Section XVI (Payment for Response Costs), for all costs incurred, direct or indirect, by the United States in obtaining such access, agreements to restrict land/water use, Proprietary Controls, and/or the release/subordination of prior liens or encumbrances including, but not limited to, the cost of attorney time and the amount of monetary consideration paid or just compensation.

28. If EPA determines that Institutional Controls in the form of State or local laws, regulations, ordinances, zoning restrictions, or other governmental controls are needed, Settling Defendants shall cooperate with EPA's efforts to secure such governmental controls.

29. Notwithstanding any provision of this Consent Decree, the United States retains all of its access authorities and rights, as well as all of its rights to require Institutional Controls, including enforcement authorities related thereto, under CERCLA, RCRA and any other applicable statute or regulations.

X. REPORTING REQUIREMENTS

30. In addition to any other requirement of this Consent Decree, Settling Defendants shall submit to EPA and the State one copy each of written monthly progress reports that comply with the requirements stated in Section IV of the SOW for monthly progress reports, until EPA

approves a shift to quarterly reports. Following EPA's approval of a shift from monthly to quarterly progress reports, Settling Defendants shall submit to EPA and the State one copy each of written quarterly reports that comply with the requirements stated in Section IV of the SOW for quarterly progress reports. Settling Defendants shall submit these progress reports to EPA and the State by the fifteenth day of every month (or by the fifteenth day of every calendar quarter after the shift to quarterly reporting) following the lodging of this Consent Decree until EPA notifies Settling Defendants, pursuant to Paragraph 49.c of Section XIV (Certification of Completion), that performance of the Work has been completed in accordance with this Consent Decree. If requested by EPA, Settling Defendants shall also provide briefings for EPA and the State to discuss the progress of the Work.

31. Settling Defendants shall notify EPA of any change in the schedule described in the monthly progress report for the performance of any activity, including, but not limited to, data collection and implementation of work plans, no later than seven days prior to the scheduled performance of the activity.

32. Upon the occurrence of any event during performance of the Work that Settling Defendants are required to report pursuant to Section 103 of CERCLA, 42 U.S.C. § 9603, or Section 304 of the Emergency Planning and Community Right-to-know Act (EPCRA), 42 U.S.C. § 11004, Settling Defendants shall within 24 hours of the onset of such event orally notify the EPA Project Coordinator, at (732) _____ , or, in the event of the unavailability of the EPA Project Coordinator, the Alternate EPA Project Coordinator, at (732) _____, or, in the event that neither the EPA Project Coordinator nor the Alternate EPA Project Coordinator is available, the Response and Prevention Branch ("RPB") of ERRD, Region 2, United States Environmental Protection Agency, at (732) 548-8730. These reporting requirements are in addition to the reporting required by CERCLA Section 103 or EPCRA Section 304.

33. Within 20 days of the onset of an event described in Paragraph 32, Settling Defendants shall furnish to EPA a written report, signed by Settling Defendants' Project Coordinator, setting forth the events that occurred and the measures taken, and to be taken, in response thereto. Within 30 days of the conclusion of such an event, Settling Defendants shall submit a report setting forth all actions taken in response thereto.

34. Unless otherwise directed by EPA, Settling Defendants shall submit two copies to EPA and one copy to NJDEP of all plans, reports, data, and other deliverables required by the SOW, the Remedial Design Work Plan, the Remedial Action Work Plan(s), or any other approved plans in accordance with the schedules set forth in such plans. Upon request by EPA, Settling Defendants shall submit in electronic form to the extent practicable all portions of any deliverable Settling Defendants are required to submit pursuant to the provisions of this Consent Decree.

35. All reports and other deliverables submitted by the Settling Defendants to EPA that purport to document the Settling Defendants' compliance with the terms of this Consent Decree shall be signed by an authorized representative of the Settling Defendants. The document with the signature may be provided in pdf.

XI. EPA APPROVAL OF PLANS, REPORTS, AND OTHER DELIVERABLES

36. Initial Submissions.

a. After review of any plan, report, or other deliverable that is required to be submitted for approval pursuant to this Consent Decree, EPA, after reasonable opportunity for review and comment by the State, shall: (i) approve, in whole or in part, the submission; (ii) approve the submission upon specified conditions; (iii) disapprove, in whole or in part, the submission; or (iv) any combination of the foregoing.

b. EPA also may modify the initial submission to cure deficiencies in the submission if: (i) EPA determines that disapproving the submission and awaiting a resubmission would cause substantial disruption to the Work; or (ii) previous submission(s) have been disapproved due to material defects and the deficiencies in the initial submission under consideration indicate a bad faith lack of effort to submit an acceptable plan, report, or deliverable.

37. Resubmissions. Upon receipt of a notice of disapproval under Paragraph 36.a.(iii) or (iv), or if required by a notice of approval upon specified conditions under Paragraph 36.a.(ii), Settling Defendants shall, within 30 days or such longer time as specified by EPA in such notice, correct the deficiencies and resubmit the plan, report, or other deliverable for approval. After review of the resubmitted plan, report, or other deliverable, EPA may: (a) approve, in whole or in part, the resubmission; (b) approve the resubmission upon specified conditions; (c) modify the resubmission; (d) disapprove, in whole or in part, the resubmission, requiring Settling Defendants to correct the deficiencies; or (e) any combination of the foregoing.

38. Material Defects. If the initially submitted or resubmitted plan, report, or other deliverable contains a material defect, and the plan, report, or other deliverable is disapproved or modified by EPA under Paragraph 36.b.(ii) or 37 due to such material defect, then the material defect shall constitute a lack of compliance for purposes of Paragraph 70. The provisions of Section XIX (Dispute Resolution) and Section XX (Stipulated Penalties) shall govern the accrual and payment of any stipulated penalties regarding Settling Defendants' submissions under this Section.

39. Implementation. Upon approval, approval upon conditions, or modification by EPA under Paragraph 36 or 37, of any plan, report, or other deliverable, or any portion thereof: (a) such plan, report, or other deliverable, or portion thereof, shall be incorporated into and enforceable under this Consent Decree; and (b) Settling Defendants shall take any action required by such plan, report, or other deliverable, or portion thereof, subject only to their right to invoke the Dispute Resolution procedures set forth in Section XIX (Dispute Resolution) with respect to the modifications or conditions made by EPA. The implementation of any non-deficient portion of a plan, report, or other deliverable submitted or resubmitted under Paragraph 36 or 37 shall not relieve Settling Defendants of any liability for stipulated penalties under Section XX (Stipulated Penalties).

XII. PROJECT COORDINATORS

40. Within 14 days of lodging this Consent Decree, Settling Defendants and EPA will notify each other, in writing, of the name, address and telephone number of their respective designated Project Coordinators and, if required, Alternate Project Coordinators. If a Project Coordinator or Alternate Project Coordinator initially designated is changed, the identity of the successor will be given to the other Parties at least five working days before the change occurs, unless impracticable, but in no event later than the actual day the change is made. The Settling

Defendants' Project Coordinator, who may be an employee of the Supervising Contractor, shall be subject to disapproval by EPA and shall have the technical expertise sufficient to adequately oversee all aspects of the Work. The Settling Defendants' Project Coordinator shall not be an attorney for any of the Settling Defendants in this matter. He or she may assign other representatives, including other contractors, to serve as a Site representative for oversight of performance of daily operations during remedial activities.

41. Plaintiff may designate other representatives, including, but not limited to, EPA employees, and federal contractors and consultants, to observe and monitor the progress of any activity undertaken pursuant to this Consent Decree. EPA's Project Coordinator and Alternate Project Coordinator shall have the authority lawfully vested in a Remedial Project Manager (RPM) and an On-Scene Coordinator (OSC) by the NCP, 40 C.F.R. Part 300. EPA's Project Coordinator or Alternate Project Coordinator shall have authority, consistent with the NCP, to halt any Work required by this Consent Decree and to take any necessary response action when he or she determines that conditions at the Site constitute an emergency situation or may present an immediate threat to public health or welfare or the environment due to release or threatened release of Waste Material.

42. Settling Defendants' Project Coordinator will be available to meet with EPA's Project Coordinator on a monthly basis.

XIII. PERFORMANCE GUARANTEE

43. In order to ensure the full and final completion of the Work, Settling Defendants shall establish and maintain a performance guarantee, initially in the amount of **$7,830,000** for the benefit of EPA (hereinafter "Estimated Cost of the Work"). The performance guarantee, which must be satisfactory in form and substance to EPA, shall be in the form of one or more of the following mechanisms (provided that, if Settling Defendants intend to use multiple mechanisms, such multiple mechanisms shall be limited to surety bonds guaranteeing payment, letters of credit, trust funds, and insurance policies):

a. A surety bond unconditionally guaranteeing payment and/or performance of the Work that is issued by a surety company among those listed as acceptable sureties on federal bonds as set forth in Circular 570 of the U.S. Department of the Treasury;

b. One or more irrevocable letters of credit, payable to or at the direction of EPA, that is issued by one or more financial institution(s) (i) that has the authority to issue letters of credit and (ii) whose letter-of-credit operations are regulated and examined by a federal or state agency;

c. A trust fund established for the benefit of EPA that is administered by a trustee that is acceptable to EPA;

d. A policy of insurance that (i) provides EPA with acceptable rights as a beneficiary thereof; and (ii) is issued by an insurance carrier (a) that has the authority to issue insurance policies in the State of New Jersey and (b) whose insurance operations are regulated and examined by the New Jersey Department of Banking and Insurance;

e. A demonstration by one or more of the Settling Defendants that each such Settling Defendant meets the financial test criteria of 40 C.F.R. § 264.143(f) with respect to the Estimated Cost of the Work, (plus the amount(s) of any other federal or any state environmental

obligations financially assured through the use of a financial test or guarantee), provided that all other requirements of 40 C.F.R. § 264.143(f) are met to EPA's satisfaction; or

f. A written guarantee to fund or perform the Work executed in favor of EPA by one or more of the following: (i) a direct or indirect parent company of a Settling Defendant, or (ii) a company that has a "substantial business relationship" (as defined in 40 C.F.R. § 264.141(h)) with at least one Settling Defendant; provided, however, that any company providing such a guarantee must demonstrate to the satisfaction of EPA that it satisfies the financial test and reporting requirements for owners and operators set forth in subparagraphs (1) through (8) of 40 C.F.R. § 264.143(f) with respect to the Estimated Cost of the Work (plus the amount(s) of any other federal or any state environmental obligations financially assured through the use of a financial test or guarantee) that it proposes to guarantee hereunder.

44. Settling Defendants have selected, and EPA has found satisfactory, as an initial performance guarantee pursuant to Paragraph 43, the establishment of a trust fund in the amount specified in paragraph 43 above pursuant to a Performance Guarantee Trust Agreement in the form attached hereto as Appendix D. Within 30 days after the Effective Date, Settling Defendants shall execute or otherwise finalize all instruments or other documents required in order to make the selected performance guarantee(s) legally binding in a form substantially identical to the documents attached hereto as Appendix D, and such performance guarantee(s) shall thereupon be fully effective. Within 50 days of the Effective Date, Settling Defendants shall submit copies of all executed and/or otherwise finalized instruments or other documents required in order to make the selected performance guarantee(s) legally binding to the EPA Regional Financial Management Officer in accordance with Section XXVI ("Notices and Submissions"), with a copy to the United States and EPA as specified in Section XXVI ("Notices and Submissions").

45. If, at any time after the Effective Date and before issuance of the Certification of Completion of the Work pursuant to Paragraph 49.c, Settling Defendants provide a performance guarantee for completion of the Work by means of a demonstration or guarantee pursuant to Paragraph 43.e or Paragraph 43.f, Settling Defendants shall also comply with the other relevant requirements of 40 C.F.R. § 264.143(f) relating to these mechanisms unless otherwise provided in this Consent Decree, including but not limited to: (a) the initial submission of required financial reports and statements from the relevant entity's chief financial officer ("CFO") and independent certified public accountant ("CPA"), in the form prescribed by EPA in its financial test sample CFO letters and CPA reports available at: http://www.epa.gov/compliance/resources/policies/cleanup/superfund/fa-test-sample.pdf; (b) the annual re-submission of such reports and statements within 90 days after the close of each such entity's fiscal year; and (c) the prompt notification of EPA after each such entity determines that it no longer satisfies the financial test requirements set forth at 40 C.F.R. § 264.143(f) and in any event within 90 days after the close of any fiscal year in which such entity no longer satisfies such financial test requirements. For purposes of the performance guarantee mechanisms specified in this Section XIII, references in 40 C.F.R. Part 264, Subpart H, to "closure," "post-closure," and "plugging and abandonment" shall be deemed to include the Work; the terms "current closure cost estimate," "current post-closure cost estimate," and "current plugging and abandonment cost estimate" shall be deemed to include the Estimated Cost of the Work; the terms "owner" and "operator" shall be deemed to refer to each Settling Defendant making a

demonstration under Paragraph 44.e; and the terms "facility" and "hazardous waste facility" shall be deemed to include the Site.

46. In the event that EPA determines at any time that a performance guarantee provided by any Settling Defendant pursuant to this Section is inadequate or otherwise no longer satisfies the requirements set forth in this Section, whether due to an increase in the estimated cost of completing the Work or for any other reason, or in the event that any Settling Defendant becomes aware of information indicating that a performance guarantee provided pursuant to this Section is inadequate or otherwise no longer satisfies the requirements set forth in this Section, whether due to an increase in the estimated cost of completing the Work or for any other reason, Settling Defendants, within 30 days of receipt of notice of EPA's determination or, as the case may be, within 30 days of any Settling Defendant becoming aware of such information, shall obtain and present to EPA for approval a proposal for a revised or alternative form of performance guarantee listed in Paragraph 43 that satisfies all requirements set forth in this Section XIII; provided, however, that if any Settling Defendant cannot obtain such revised or alternative form of performance guarantee within such 30-day period, and provided further that the Settling Defendant shall have commenced to obtain such revised or alternative form of performance guarantee within such 30-day period, and thereafter diligently proceeds to obtain the same, EPA shall extend such period for such time as is reasonably necessary for the Settling Defendant in the exercise of due diligence to obtain such revised or alternative form of performance guarantee, such additional period not to exceed 60 days. On day 30, the Settling Defendants shall provide EPA a status report on its efforts to obtain the revised or alternative form of guarantee. In seeking approval for a revised or alternative form of performance guarantee, Settling Defendants shall follow the procedures set forth in Paragraph 48.b(2). Settling Defendants' inability to post a performance guarantee for completion of the Work shall in no way excuse performance of any other requirements of this Consent Decree, including, without limitation, the obligation of Settling Defendants to complete the Work in strict accordance with the terms of this Consent Decree.

47. Funding for Work Takeover. The commencement of any Work Takeover pursuant to Paragraph 87 shall trigger EPA's right to receive the benefit of any performance guarantee(s) provided pursuant to Paragraphs 43.a, 43.b, 43.c, 43.d, or 43.f, and at such time EPA shall have immediate access to resources guaranteed under any such performance guarantee(s), whether in cash or in kind, as needed to continue and complete the Work assumed by EPA under the Work Takeover. Upon the commencement of any Work Takeover, if (a) for any reason EPA is unable to promptly secure the resources guaranteed under any such performance guarantee(s), whether in cash or in kind, necessary to continue and complete the Work assumed by EPA under the Work Takeover, or (b) in the event that the performance guarantee involves a demonstration of satisfaction of the financial test criteria pursuant to Paragraph 43.e or Paragraph 43.f(ii), Settling Defendants (or in the case of Paragraph 43.f(ii), the guarantor) shall immediately upon written demand from EPA deposit into a special account within the EPA Hazardous Substances Superfund or such other account as EPA may specify, in immediately available funds and without setoff, counterclaim, or condition of any kind, a cash amount up to but not exceeding the estimated cost of completing the Work as of such date, as determined by EPA. In addition, if at any time EPA is notified by the issuer of a performance guarantee that such issuer intends to cancel the performance guarantee mechanism it has issued, then, unless Settling Defendants provide a substitute performance guarantee mechanism in

accordance with this Section XIII no later than 30 days prior to the impending cancellation date, EPA shall be entitled (as of and after the date that is 30 days prior to the impending cancellation) to draw fully on the funds guaranteed under the then-existing performance guarantee. All EPA Work Takeover costs not reimbursed under this Paragraph shall be reimbursed under Section XVI (Payments for Response Costs).

48. Modification of Amount and/or Form of Performance Guarantee.

a. Reduction of Amount of Performance Guarantee. If Settling Defendants believe that the estimated cost of completing the Work has diminished below the amount set forth in Paragraph 43, Settling Defendants may, on any anniversary date of entry of the Effective Date, or at any other time agreed to by the Parties, petition EPA in writing to request a reduction in the amount of the performance guarantee provided pursuant to this Section so that the amount of the performance guarantee is equal to the estimated cost of completing the Work. Settling Defendants shall submit a written proposal for such reduction to EPA that shall specify, at a minimum, the estimated cost of completing the Work and the basis upon which such cost was calculated. In seeking approval for a reduction in the amount of the performance guarantee, Settling Defendants shall follow the procedures set forth in Paragraph 48.b(2) for requesting a revised or alternative form of performance guarantee, except as specifically provided in this Paragraph 48.a. If EPA decides to accept Settling Defendants' proposal for a reduction in the amount of the performance guarantee, either to the amount set forth in Settling Defendants' written proposal or to some other amount as selected by EPA, EPA will notify the petitioning Settling Defendants of such decision in writing. Upon EPA's acceptance of a reduction in the amount of the performance guarantee, the Estimated Cost of the Work shall be deemed to be the estimated cost of completing the Work set forth in EPA's written decision. After receiving EPA's written decision, Settling Defendants may reduce the amount of the performance guarantee in accordance with and to the extent permitted by such written acceptance and shall submit copies of all executed and/or otherwise finalized instruments or other documents required in order to make the selected performance guarantee(s) legally binding in accordance with Paragraph 48.b(2). In the event of a dispute, Settling Defendants may reduce the amount of the performance guarantee required hereunder only in accordance with a final administrative or judicial decision resolving such dispute pursuant to Section XIX (Dispute Resolution). No change to the form or terms of any performance guarantee provided under this Section, other than a reduction in amount, is authorized except as provided in Paragraphs 46 or 48.b.

b. Change of Form of Performance Guarantee.

(1) If, after the Effective Date, Settling Defendants desire to change the form or terms of any performance guarantee(s) provided pursuant to this Section, Settling Defendants may, on any anniversary of the Effective Date, or at any other time agreed to by the Parties, petition EPA in writing to request a change in the form or terms of the performance guarantee provided hereunder. The submission of such proposed revised or alternative performance guarantee shall be as provided in Paragraph 48.b(2). Any decision made by EPA on a petition submitted under this Paragraph shall be made in EPA's sole and unreviewable discretion, and such decision shall not be subject to challenge by Settling Defendants pursuant to the dispute resolution provisions of this Consent Decree or in any other forum.

(2) Settling Defendants shall submit a written proposal for a revised or alternative performance guarantee to EPA which shall specify, at a minimum, the estimated

cost of completing the Work, the basis upon which such cost was calculated, and the proposed revised performance guarantee, including all proposed instruments or other documents required in order to make the proposed performance guarantee legally binding. The proposed revised or alternative performance guarantee must satisfy all requirements set forth or incorporated by reference in this Section. Settling Defendants shall submit such proposed revised or alternative performance guarantee to the EPA Regional Financial Management Officer in accordance with Section XXVI (Notices and Submissions). EPA will notify Settling Defendants in writing of its decision to accept or reject a revised or alternative performance guarantee submitted pursuant to this Paragraph. Within 10 days after receiving a written decision approving the proposed revised or alternative performance guarantee, Settling Defendants shall execute and/or otherwise finalize all instruments or other documents required in order to make the selected performance guarantee(s) legally binding in a form substantially identical to the documents submitted to EPA as part of the proposal, and such performance guarantee(s) shall thereupon be fully effective. Settling Defendants shall submit copies of all executed and/or otherwise finalized instruments or other documents required in order to make the selected performance guarantee(s) legally binding to the EPA Regional Financial Management Officer within 30 days of receiving a written decision approving the proposed revised or alternative performance guarantee in accordance with Section XXVI (Notices and Submissions) and to the United States and EPA as specified in Section XXVI.

c. Release of Performance Guarantee. Settling Defendants shall not release, cancel, or discontinue any performance guarantee provided pursuant to this Section except as provided in this Paragraph. If Settling Defendants receive written notice from EPA in accordance with Paragraph 49.c that the Work has been fully and finally completed in accordance with the terms of this Consent Decree, or if EPA otherwise so notifies Settling Defendants in writing, Settling Defendants may thereafter release, cancel, or discontinue the performance guarantee(s) provided pursuant to this Section. In the event of a dispute, Settling Defendants may release, cancel, or discontinue the performance guarantee(s) required hereunder only in accordance with a final administrative or judicial decision resolving such dispute pursuant to Section XIX (Dispute Resolution).

XIV. CERTIFICATION OF COMPLETION

49. a. Completion of Construction and Initial Operation of the Remedial Action

In accordance with Section XI of the SOW, Settling Defendants shall submit a Remedial Action Report after a period of at least three years following initiation of the in-situ groundwater treatment system operations and within 90 days of notification by EPA that the Remedial Action Report is to be submitted, which Remedial Action Report shall be subject to EPA approval pursuant to Section XI.B.3 of the SOW.

b. Completion of the Remedial Action

1. Within 90 days after Settling Defendants conclude that the Remedial Action has been fully performed and the Performance Standards have been achieved as provided in Section XII.A. of the SOW (except to the extent, if at all, any ARAR waivers are granted by EPA, in its sole discretion, as provided in Section XIII.A.1 of the SOW), Settling

Defendants shall submit a written report, which shall be certified by a New Jersey registered professional engineer if such certification is necessary, stating that the Remedial Action has been completed in full satisfaction of the requirements of this Consent Decree and setting forth the basis of Settling Defendants' conclusion. The report shall contain the following statement, signed by a responsible corporate official of a Settling Defendant or the Settling Defendants' Project Coordinator:

> I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If, after review of the written report, EPA, after reasonable opportunity for review and comment by the State, determines that the Remedial Action or any portion thereof has not been completed in accordance with this Consent Decree or that the Performance Standards have not been achieved as provided in Sections XII.A. and XIII.A.1 of the SOW, EPA will notify Setting Defendants in writing of the activities that must be undertaken by Settling Defendants pursuant to this Consent Decree to complete the Remedial Action and achieve the Performance Standards, provided, however, that EPA may only require Settling Defendants to perform such activities pursuant to this Paragraph to the extent that such activities are consistent with the "scope of the remedy set forth in the ROD," as that term is defined in Paragraph 13.a . EPA will set forth in the notice a schedule for performance of such activities consistent with the Consent Decree and the SOW or require Settling Defendants to submit a schedule to EPA for approval pursuant to Section XI (EPA Approval of Plans, Reports, and Other Deliverables). Settling Defendants shall perform all activities described in the notice in accordance with the specifications and schedules established pursuant to this Paragraph, subject to their right to invoke the dispute resolution procedures set forth in Section XIX (Dispute Resolution).

2. If EPA concludes, based on the initial or any subsequent report requesting Certification of Completion of the Remedial Action and after a reasonable opportunity for review and comment by the State, that the Remedial Action has been performed in accordance with this Consent Decree and that the Performance Standards have been achieved as provided in Sections XII.A. and XIII.A.1 of the SOW, EPA will so certify in writing to Settling Defendants. This certification shall constitute the Certification of Completion of the Remedial Action for purposes of this Consent Decree, including, but not limited to, Section XXI (Covenants by Plaintiff). Certification of Completion of the Remedial Action shall not affect Settling Defendants' remaining obligations under this Consent Decree or the OU2 CD.

c. Completion of the Work

1. Within 90 days after Settling Defendants conclude that all phases of the Work, other than any remaining activities required under Section VII (Remedy Review), have been fully performed, Settling Defendants shall schedule and conduct a pre-certification inspection to be attended by Settling Defendants and EPA. If, after the pre-certification inspection, the Settling Defendants still believe that the Work has been fully performed, Settling Defendants shall submit a written report, which shall be certified by a New Jersey registered professional engineer if such certification is necessary, stating that the Work has been completed in full satisfaction of the requirements of this Consent Decree. The report shall contain the following statement, signed by a responsible corporate official of a Settling Defendant or the Settling Defendants' Project Coordinator:

> I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If, after review of the written report, EPA, after reasonable opportunity for review and comment by the State, determines that any portion of the Work has not been completed in accordance with this Consent Decree, EPA will notify Settling Defendants in writing of the activities that must be undertaken by Settling Defendants pursuant to this Consent Decree to complete the Work, provided, however, that EPA may only require Settling Defendants to perform such activities pursuant to this Paragraph to the extent that such activities are consistent with the "scope of the remedy set forth in the ROD," as that term is defined in Paragraph 13.a. EPA will set forth in the notice a schedule for performance of such activities consistent with the Consent Decree and the SOW or require Settling Defendants to submit a schedule to EPA for approval pursuant to Section XI (EPA Approval of Plans, Reports, and Other Deliverables). Settling Defendants shall perform all activities described in the notice in accordance with the specifications and schedules established therein, subject to their right to invoke the dispute resolution procedures set forth in Section XIX (Dispute Resolution).

2. If EPA concludes, based on the initial or any subsequent request for Certification of Completion of the Work by Settling Defendants and after a reasonable opportunity for review and comment by the State, that the Work has been performed in accordance with this Consent Decree, EPA will so notify Settling Defendants in writing.

XV. EMERGENCY RESPONSE

50. If any action or occurrence during the performance of the Work causes or threatens a release of Waste Material from the Site that constitutes an emergency situation or may present an immediate threat to public health or welfare or the environment, Settling Defendants shall, subject to Paragraph 52, immediately take all appropriate action to prevent, abate, or minimize such release or threat of release, and shall immediately notify EPA's Project Coordinator, at (732) _____, or, if the Project Coordinator is unavailable, EPA's Alternate Project Coordinator, at (732) _____. If neither of these persons is available, Settling Defendants shall notify the EPA Response and Prevention Branch ("RPB"), ERRD, Region 2, at (732) 548-8730. Settling Defendants shall take such actions in consultation with EPA's Project Coordinator or other available authorized EPA officer and in accordance with all applicable provisions of the Health and Safety Plans, any approved contingency plans, and any other applicable plans or documents developed pursuant to the SOW. In the event that Settling Defendants fail to take appropriate response action as required by this Section, and EPA takes such action instead, Settling Defendants shall reimburse EPA all costs of the response action not inconsistent with the NCP pursuant to Section XVI (Payments for Response Costs).

51. Subject to Section XXI (Covenants by Plaintiff), nothing in the preceding Paragraph or in this Consent Decree shall be deemed to limit any authority of the United States (a) to take all appropriate action to protect human health and the environment or to prevent, abate, respond to, or minimize an actual or threatened release of Waste Material on, at, or from the Site, or (b) to direct or order such action, or seek an order from the Court, to protect human health and the environment or to prevent, abate, respond to, or minimize an actual or threatened release of Waste Material on, at, or from the Site.

XVI. PAYMENTS FOR RESPONSE COSTS

52. Payment by Settling Defendants for Past Response Costs.

a. Within 30 days of the Effective Date, Settling Defendants shall pay to EPA **$ 50,000** in payment for Past Response Costs. Payment shall be made in accordance with Paragraphs 54.a and 54.c (Payment Instructions).

b. The total amount to be paid by Settling Defendants pursuant to Subparagraph 52.a shall be deposited in the Scientific Chemical Processing Superfund Site Special Account to be retained and used to conduct or finance response actions at or in connection with the Site, or to be transferred by EPA to the EPA Hazardous Substance Superfund.

53. Payments by Settling Defendants for Future Response Costs.

Settling Defendants shall pay to EPA all Future Response Costs not inconsistent with the NCP, except Future Oversight Costs.

a. On a periodic basis EPA will send Settling Defendants a bill requiring payment that includes a Superfund Cost Recovery Package Imaging and On-line System ("SCORPIOS") Report, which includes direct and indirect costs incurred by EPA and its contractors, and a U.S. Department of Justice ("DOJ") case cost summary. Upon request by Settling Defendants, EPA will also provide, where applicable, copies of contractor vouchers or invoices and contractor monthly reports. Settling Defendants shall make all payments within 30 days of Settling Defendants' receipt of each bill requiring payment and, if requested and where

applicable, copies of contractor vouchers or invoices and contractor monthly reports, except as otherwise provided in Paragraph 55, in accordance with Paragraphs 54.b and 54.c (Payment Instructions).

b. The total amount to be paid by Settling Defendants pursuant to Subparagraph 53.a shall be deposited in the Scientific Chemical Processing Superfund Site Special Account to be retained and used to conduct or finance response actions at or in connection with the Site, or to be transferred by EPA to the EPA Hazardous Substance Superfund.

54. Payment Instructions for Settling Defendants.

a. Instructions for Past Response Costs Payments. All payments required elsewhere in this Consent Decree to be made in accordance with this Paragraph 54.a shall be made at https://www.pay.gov to the U.S. Department of Justice account, in accordance with instructions provided to Settling Defendants by the Financial Litigation Unit ("FLU") of the United States Attorney's Office for the District of New Jersey after the Effective Date. The payment instructions provided by the FLU shall include a Consolidated Debt Collection System ("CDCS") number, which shall be used to identify all payments required to be made in accordance with this Consent Decree. The FLU shall provide the payment instructions to:

William L. Warren, Esq.
Drinker Biddle & Reath LLP
105 College Road East
Suite 300
P.O. Box 627
Princeton, New Jersey 08542-0627
(609) 716-6500/ william.warren@dbr.com

Settling Defendants may change the individual to receive payment instructions on its behalf by providing written notice of such change in accordance with Section XXVI (Notices and Submissions).

b. Instructions for Future Response Costs Payments and Stipulated Penalties. All payments required elsewhere in this Consent Decree to be made in accordance with this Paragraph 54.b shall be made by Fedwire EFT to:

Federal Reserve Bank of New York
ABA = 021030004
Account = 68010727
SWIFT address = FRNYUS33
33 Liberty Street
New York, NY 10045
Field Tag 4200 of the Fedwire message should read "D 68010727 Environmental Protection Agency"

c. Instructions for All Payments. All payments made under Paragraph 54.a or 54.b shall reference the CDCS Number, EPA Site/Spill ID Number 02-65 and DOJ Case Number 90-11-2-495/2. At the time of any payment required to be made in accordance with Paragraphs 54.a or 54.b, Settling Defendants shall send notice that payment has been made to the United States, and to EPA, in accordance with Section XXVI (Notices and Submissions), and to the EPA Cincinnati Finance Office by email at acctsreceivable.cinwd@epa.gov, or by mail at 26 Martin Luther King Drive, Cincinnati, Ohio 45268. Such notice shall also reference the CDCS Number, Site/Spill ID Number, and DOJ case number.

55. Settling Defendants may contest any Future Response Costs billed under Paragraph 53 if they determine that EPA has made a mathematical error or included a cost item that is not within the definition of Future Response Costs, or if they believe EPA incurred excess costs as a direct result of an EPA action that was inconsistent with a specific provision or provisions of the NCP. Such objection shall be made in writing within 30 days of receipt of the bill and, if requested and where applicable, copies of contractor vouchers or invoices and contractor monthly reports, and must be sent to the United States pursuant to Section XXVI (Notices and Submissions). Any such objection shall specifically identify the contested Future Response Costs and the basis for objection. In the event of an objection, Settling Defendants shall, within the 30 day period, pay all uncontested Future Response Costs to the United States . Simultaneously, the Settling Defendants shall establish an interest-bearing escrow account in a federally-insured bank duly chartered in the State of New Jersey and remit to that escrow account funds equivalent to the amount of the contested Future Response Costs. The Settling Defendants shall send to the United States, as provided in Section XXVI (Notices and Submissions), a copy of the transmittal letter and payment document paying the uncontested Future Response Costs, and a copy of the correspondence that establishes and funds the escrow account, including, but not limited to, information containing the identity of the bank and bank account under which the escrow account is established as well as a bank statement showing the initial balance of the escrow account. Simultaneously with establishment of the escrow account, the Settling Defendants shall initiate the Dispute Resolution procedures in Section XIX (Dispute Resolution). If the United States prevails in the dispute, Settling Defendants shall pay the sums due (with accrued interest) to the United States within five days of the resolution of the dispute. If Settling Defendants prevail concerning any aspect of the contested costs, Settling Defendants shall pay that portion of the costs for which it did not prevail to the United States (plus associated accrued interest) within five days of the resolution of the dispute. Settling Defendants shall be disbursed any balance of the escrow account. All payments to the United States under this Paragraph shall be made in accordance with Paragraphs 54.b and 54.c (Payment Instructions). The dispute resolution procedures set forth in this Paragraph in conjunction with the procedures set forth in Section XIX (Dispute Resolution) shall be the exclusive mechanisms for resolving

disputes regarding Settling Defendants' obligation to reimburse the United States for its Future Response Costs.

56. Interest. In the event that any payment for Past Response Costs or Future Response Costs required under this Section is not made by the date required, Settling Defendants shall pay Interest on the unpaid balance. The Interest to be paid on Past Response Costs under this Paragraph shall begin to accrue on the Effective Date. The Interest on Future Response Costs shall begin to accrue on the date of the bill. The Interest shall accrue through the date of the Settling Defendants' payment. Payments of Interest made under this Paragraph shall be in addition to such other remedies or sanctions available to Plaintiff by virtue of Settling Defendants' failure to make timely payments under this Section including, but not limited to, payment of stipulated penalties pursuant to Paragraph 71.

XVII. INDEMNIFICATION AND INSURANCE

57. Settling Defendants' Indemnification of the United States.

a. The United States does not assume any liability by entering into this Consent Decree or by virtue of any designation of Settling Defendants as EPA's authorized representatives under Section 104(e) of CERCLA, 42 U.S.C. § 9604(e). The Settling Defendants shall indemnify, save and hold harmless the United States and its officials, agents, employees, contractors, subcontractors, and representatives for or from any and all claims or causes of action arising from, or on account of, negligent or other wrongful acts or omissions of Settling Defendants, their officers, directors, employees, agents, contractors, subcontractors, and any persons acting on their behalf or under their control, in carrying out activities pursuant to this Consent Decree, including, but not limited to, any claims arising from any designation of Settling Defendants as EPA's authorized representative under Section 104(e) of CERCLA. Further, Settling Defendants agree to pay the United States all costs it incurs including, but not limited to, attorneys fees and other expenses of litigation and settlement arising from, or on account of, claims made against the United States based on negligent or other wrongful acts or omissions of Settling Defendants, their officers, directors, employees, agents, contractors, subcontractors, and any persons acting on their behalf or under their control, in carrying out activities pursuant to this Consent Decree. The United States shall not be held out as a party to any contract entered into by or on behalf of Settling Defendants in carrying out activities pursuant to this Consent Decree. Neither Settling Defendants nor any such contractor shall be considered an agent of the United States.

b. The United States shall give Settling Defendants notice of any claim for which the United States plans to seek indemnification pursuant to Paragraph 57, and shall consult with Settling Defendants prior to settling such claim.

58. Settling Defendants covenant not to sue and agree not to assert any claims or causes of action against the United States for damages or reimbursement or for set-off of any payments made or to be made to the United States, arising from or on account of any contract, agreement, or arrangement between any one or more of Settling Defendants and any person for performance of Work on or relating to the Site, including, but not limited to, claims on account of construction delays. In addition, Settling Defendants shall indemnify and hold harmless the United States with respect to any and all claims for damages or reimbursement arising from or on account of any contract, agreement, or arrangement between any one or more of Settling

Defendants and any person for performance of Work on or relating to the Site, including, but not limited to, claims on account of construction delays.

59. No later than 15 days before commencing any on-site Work, Settling Defendants shall secure, and shall maintain, until the first anniversary of EPA's approval of the Remedial Action Report required under Section XI of the SOW, comprehensive general liability insurance with limits of $5 million dollars, combined single limit, and automobile liability insurance with limits of $1 million dollars, combined single limit, naming the United States as an additional insured with respect to all liability arising out of the activities performed by or on behalf of Settling Defendants pursuant to this Consent Decree. In addition, for the duration of this Consent Decree, Settling Defendants shall satisfy, or shall ensure that their contractors or subcontractors satisfy, all applicable laws and regulations regarding the provision of worker's compensation insurance for all persons performing the Work on behalf of Settling Defendants in furtherance of this Consent Decree. Prior to commencement of the Work under this Consent Decree, Settling Defendants shall provide to EPA certificates of such insurance and a copy of each insurance policy. Settling Defendants shall resubmit such certificates and, upon written request by EPA, copies of policies each year on the anniversary of the Effective Date. If Settling Defendants demonstrate by evidence satisfactory to EPA that any contractor or subcontractor maintains insurance equivalent to that described above, or insurance covering the same risks but in a lesser amount, then, with respect to that contractor or subcontractor, Settling Defendants need provide only that portion of the insurance described above that is not maintained by the contractor or subcontractor.

XVIII. FORCE MAJEURE

60. "Force majeure," for purposes of this Consent Decree, is defined as any event arising from causes beyond the control of the Settling Defendants, of any entity controlled by Settling Defendants, or of Settling Defendants' contractors, that delays or prevents the performance of any obligation under this Consent Decree despite Settling Defendants' best efforts to fulfill the obligation. The requirement that the Settling Defendants exercise "best efforts to fulfill the obligation" includes using best efforts to anticipate any potential force majeure and best efforts to address the effects of any potential force majeure (1) as it is occurring and (2) following the potential force majeure, such that the delay and any adverse effects of the delay are minimized to the greatest extent possible. "Force Majeure" does not include financial inability to complete the Work or a failure to achieve the Performance Standards.

61. If any event occurs or has occurred that may delay the performance of any obligation under this Consent Decree for which Settling Defendants intend or may intend to assert a claim of force majeure, Settling Defendants shall notify orally EPA's Project Coordinator or, in his or her absence, EPA's Alternate Project Coordinator or, in the event both of EPA's designated representatives are unavailable, the Director of ERRD, EPA Region 2, within 5 days of when Settling Defendants first knew that the event might cause a delay. Within 10 days thereafter, Settling Defendants shall provide in writing to EPA an explanation and description of the reasons for the delay; the anticipated duration of the delay; all actions taken or to be taken to prevent or minimize the delay; a schedule for implementation of any measures to be taken to prevent or mitigate the delay or the effect of the delay; Settling Defendants' rationale for attributing such delay to a force majeure; and a statement as to whether, in the opinion of Settling Defendants, such event may cause or contribute to an endangerment to public health or

welfare or the environment. Settling Defendants shall include with any notice all available documentation supporting their claim that the delay was attributable to a force majeure. The Settling Defendants shall be deemed to know of any circumstance of which Settling Defendants, any entity controlled by Settling Defendants, or Settling Defendants' contractors knew or should have known. Failure to comply with the above requirements regarding an event shall preclude Settling Defendants from asserting any claim of force majeure regarding that event, provided, however, that if EPA, despite the late notice, is able to assess to its satisfaction whether the event is a force majeure under Paragraph 60 and whether Settling Defendants have exercised their best efforts under Paragraph 60, EPA may, in its unreviewable discretion, excuse in writing Settling Defendants' failure to submit timely notices under this Paragraph.

62. If EPA agrees that the delay or anticipated delay is attributable to a force majeure event, the time for performance of the obligations under this Consent Decree that are affected by the force majeure will be extended by EPA for such time as is necessary to complete those obligations. An extension of the time for performance of the obligations affected by the force majeure shall not, of itself, extend the time for performance of any other obligation. If EPA does not agree that the delay or anticipated delay has been or will be caused by a force majeure, EPA will notify the Settling Defendants in writing of its decision. If EPA agrees that the delay is attributable to a force majeure, EPA will notify the Settling Defendants in writing of the length of the extension, if any, for performance of the obligations affected by the force majeure.

63. If Settling Defendants elect to invoke the dispute resolution procedures set forth in Section XIX (Dispute Resolution), they shall do so no later than 15 days after receipt of EPA's notice. In any such proceeding, Settling Defendants shall have the burden of demonstrating by a preponderance of the evidence that the delay or anticipated delay has been or will be caused by a force majeure, that the duration of the delay or the extension sought was or will be warranted under the circumstances, that best efforts were exercised to avoid and mitigate the effects of the delay, and that Settling Defendants complied with the requirements of Paragraphs 60 and 61. If Settling Defendants carry this burden, the delay at issue shall be deemed not to be a violation by Settling Defendants of the affected obligation of this Consent Decree identified to EPA and the Court.

XIX. DISPUTE RESOLUTION

64. Unless otherwise expressly provided for in this Consent Decree, the dispute resolution procedures of this Section shall be the exclusive mechanism to resolve disputes regarding this Consent Decree. However, the procedures set forth in this Section shall not apply to actions by the United States to enforce obligations of the Settling Defendants that have not been disputed in accordance with this Section.

65. Any dispute regarding this Consent Decree shall in the first instance be the subject of informal negotiations between the parties to the dispute. The period for informal negotiations shall not exceed 20 days from the time the dispute arises, unless it is modified by written agreement of the parties to the dispute. The dispute shall be considered to have arisen when one party sends the other parties a written Notice of Dispute.

66. Statements of Position.

a. In the event that the parties cannot resolve a dispute by informal negotiations under the preceding Paragraph, then the position advanced by EPA shall be

considered binding unless, within 14 days after the conclusion of the informal negotiation period, Settling Defendants notify the United States that they intend to invoke the formal dispute resolution procedures of this Section and, within 30 days after the conclusion of the informal negotiation period, Settling Defendants invoke the formal dispute resolution procedures of this Section by serving on the United States a written Statement of Position on the matter in dispute, including, but not limited to, any factual data, analysis or opinion supporting that position and any supporting documentation relied upon by the Settling Defendants. The Statement of Position shall specify the Settling Defendants' position as to whether formal dispute resolution should proceed under Paragraph 67 or Paragraph 68.

b. Within 30 days after receipt of Settling Defendants' Statement of Position, EPA will serve on Settling Defendants its Statement of Position, including, but not limited to, any factual data, analysis, or opinion supporting that position and all supporting documentation relied upon by EPA. EPA's Statement of Position shall include a statement as to whether formal dispute resolution should proceed under Paragraph 67 or 68. Within 20 days after receipt of EPA's Statement of Position, Settling Defendants may submit a Reply.

c. If there is disagreement between EPA and the Settling Defendants as to whether dispute resolution should proceed under Paragraph 67 or 68, the parties to the dispute shall follow the procedures set forth in the paragraph determined by EPA to be applicable. However, if the Settling Defendants ultimately appeal to the Court to resolve the dispute, the Court shall determine which paragraph is applicable in accordance with the standards of applicability set forth in Paragraphs 67 and 68.

67. Record Review. Formal dispute resolution for disputes pertaining to the selection or adequacy of any response action and all other disputes that are accorded review on the administrative record under applicable principles of administrative law shall be conducted pursuant to the procedures set forth in this Paragraph. For purposes of this Paragraph, the adequacy of any response action includes, without limitation, (1) the adequacy or appropriateness of plans, procedures to implement plans, or any other items requiring approval by EPA under this Consent Decree, and (2) the adequacy of the performance of response actions taken pursuant to this Consent Decree. Nothing in this Consent Decree shall be construed to allow any dispute by Settling Defendants regarding the validity of the ROD's provisions.

a. An administrative record of the dispute shall be maintained by EPA and shall contain all statements of position and the Reply, if any, of the Settling Defendants to EPA's statement of position, including supporting documentation, exhibits, and appendices, submitted pursuant to this Section. Where appropriate, EPA may allow submission of supplemental statements of position by the parties to the dispute.

b. The Director of the ERRD, EPA Region 2, will issue a final administrative decision resolving the dispute based on the administrative record described in Paragraph 67.a. This decision shall be binding upon the Settling Defendants, subject only to the right to seek judicial review pursuant to Paragraph 67.c and 67.d.

c. Any administrative decision made by EPA pursuant to Paragraph 67.b shall be reviewable by this Court, provided that a motion for judicial review of the decision is filed by the Settling Defendants with the Court and served on the United States within 20 days of receipt of EPA's decision. The motion shall include a description of the matter in dispute, the

efforts made by the parties to resolve it, the relief requested, and the schedule, if any, within which the dispute must be resolved to ensure orderly implementation of this Consent Decree. The United States may file a response to Settling Defendants' motion, and the Settling Defendants may file a reply to any response filed by the United States. If Settling Defendants file a reply, the United States may file a surreply.

d. In proceedings on any dispute governed by this Paragraph, Settling Defendants shall have the burden of demonstrating that the decision of the ERRD Director is arbitrary and capricious or otherwise not in accordance with law. Judicial review of EPA's decision shall be on the administrative record compiled pursuant to Paragraph 67.a.

68. Formal dispute resolution for disputes that neither pertain to the selection or adequacy of any response action nor are otherwise accorded review on the administrative record under applicable principles of administrative law, shall be governed by this Paragraph.

a. Following receipt of Settling Defendants' Statement of Position submitted pursuant to Paragraph 66, the Director of ERRD, EPA Region 2, will issue a final decision resolving the dispute. The ERRD Director's decision shall be binding on Settling Defendants unless, within 20 days of receipt of the decision, Settling Defendants file with the Court and serve on the United States a motion for judicial review of the decision setting forth the matter in dispute, the efforts made by the Parties to resolve it, the relief requested, and the schedule, if any, within which the dispute must be resolved to ensure orderly implementation of the Consent Decree. The United States may file a response to the Settling Defendants' motion and the Settling Defendants may file a reply to any response filed by the United States. If Settling Defendants file a reply, the United States may file a surreply.

b. Notwithstanding Paragraph U (CERCLA Section 113(j) Record Review of ROD and Work) of Section I (Background) of this Consent Decree, judicial review of any dispute governed by this Paragraph shall be governed by applicable principles of law.

69. The invocation of formal dispute resolution procedures under this Section shall not extend, postpone or affect in any way any obligation of the Settling Defendants under this Consent Decree, not directly in dispute, unless EPA or the Court agrees otherwise. Stipulated penalties with respect to the disputed matter shall continue to accrue but payment shall be stayed pending resolution of the dispute as provided in Paragraph 77. Notwithstanding the stay of payment, stipulated penalties shall accrue from the first day of noncompliance with any applicable provision of this Consent Decree. In the event that the Settling Defendants do not prevail on the disputed issue, stipulated penalties shall be assessed and paid as provided in Section XX (Stipulated Penalties).

XX. STIPULATED PENALTIES

70. Settling Defendants shall be liable for stipulated penalties in the amounts set forth in Paragraphs 71 and 72 to the United States for failure to comply with the requirements of this Consent Decree specified below, unless excused under Section XVIII (Force Majeure). "Compliance" by Settling Defendants shall include completion of all payments and activities required under this Consent Decree, or any plan, report, or other deliverable approved under this Consent Decree, in accordance with all applicable requirements of law, this Consent Decree, the SOW, and any plans, reports, or other deliverables approved by EPA pursuant to this Consent Decree and within the specified time schedules established by and approved under this Consent

Decree. The amount of stipulated penalties specified below is per violation per day for the Settling Defendants collectively, not per violation per day per Settling Defendant. The obligations of the Settling Defendants to pay stipulated penalties, if any, are joint and several.

71. Stipulated Penalty Amounts –Work (Including Payments and Excluding Reports pursuant to Section X).

a. The following stipulated penalties shall accrue per violation per day for any noncompliance with the requirements identified in Paragraph 71.b:

Penalty Per Violation Per Day	Period of Noncompliance
$500	1st through 5th day
$1,000	6th through 15th day
$3,000	16th through 30th day
$5,000	31st through 45th day
$7,500	46th day and beyond

b. Compliance Milestones.

(1) Payments for Past Response Costs and for Future Response Costs pursuant to Section XVI (Payment for Response Costs);

(2) Provision of Performance Guarantee pursuant to Section XIII (Performance Guarantee);

(3) Implementation of Remedial Design, Remedial Action, or post remediation O&M and monitoring in accordance with the ROD, the SOW, or this Consent Decree, and plans and schedules approved thereunder, including designation of Supervising Contractor, hiring of contractors, submission of timely and adequate plans, schedules, reports, and other deliverables, and completion of tasks in accordance with deadlines and requirements specified therein.

72. Stipulated Penalty Amounts – Other Requirements. The following stipulated penalties shall accrue per violation per day for any failure to submit timely or adequate reports pursuant to Section X (Reporting Requirements) or to comply with any other provision of this Consent Decree not included in Paragraph 71.b above:

Penalty Per Violation Per Day	Period of Noncompliance
$500	1st through 14th day
$1,000	15th through 30th day
$2,000	31st day and beyond

73. In the event that EPA assumes performance of a portion or all of the Work pursuant to Paragraph 87 (Work Takeover), Settling Defendants shall be liable for a stipulated penalty in the amount of $500,000. The stipulated penalty under this Paragraph is in addition to the remedies available under Paragraphs 47 (Funding for Work Takeover) and 87 (Work Takeover).

74. All penalties shall begin to accrue on the day after the complete performance is due or the day a violation occurs, and shall continue to accrue through the final day of the correction of the noncompliance or completion of the activity. However, stipulated penalties shall not accrue: (a) with respect to a deficient submission under Section XI (EPA Approval of Plans, Reports, and Other Deliverables), during the period, if any, beginning on the 31st day after EPA's receipt of such submission until the date that EPA notifies Settling Defendants of any deficiency; (b) with respect to a decision by the Director of the ERRD, EPA Region 2, under Paragraph 67.b or 68.a of Section XIX (Dispute Resolution), during the period, if any, beginning on the 21st day after the date that Settling Defendants' reply to EPA's Statement of Position is received until the date that the Director issues a final decision regarding such dispute; or (c) with respect to judicial review by this Court of any dispute under Section XIX (Dispute Resolution), during the period, if any, beginning on the 31st day after the Court's receipt of the final submission regarding the dispute until the date that the Court issues a final decision regarding such dispute. Nothing in this Consent Decree shall prevent the simultaneous accrual of separate penalties for separate violations of this Consent Decree.

75. Following EPA's determination that Settling Defendants have failed to comply with a requirement of this Consent Decree, EPA may give Settling Defendants written notification of the same and describe the noncompliance. EPA may send Settling Defendants a written demand for the payment of the penalties. However, penalties shall accrue as provided in the preceding Paragraph regardless of whether EPA has notified Settling Defendants of a violation.

76. All penalties accruing under this Section shall be due and payable to the United States within 30 days of Settling Defendants' receipt from EPA of a demand for payment of the penalties, unless Settling Defendants invoke the Dispute Resolution procedures under Section XIX (Dispute Resolution) within the 30-day period. All payments to the United States under this Section shall indicate that the payment is for stipulated penalties, and shall be made in accordance with Paragraphs 54.b and 54.c (Payment Instructions).

77. Penalties shall continue to accrue as provided in Paragraph 74 during any dispute resolution period, but need not be paid until the following:

a. If the dispute is resolved by agreement of the Parties or by a decision of EPA that is not appealed to this Court, accrued penalties determined to be owed shall be paid to EPA within 30 days of the agreement or the receipt of EPA's decision or order;

b. If the dispute is appealed to this Court and the United States prevails in whole or in part, Settling Defendants shall pay all accrued penalties determined by the Court to be owed to EPA within 60 days of receipt of the Court's decision or order, except as provided in Paragraph 77.c;

c. If the District Court's decision is appealed by any Party, Settling Defendants shall pay all accrued penalties determined by the District Court to be owed to the United States into an interest-bearing escrow account within 60 days of receipt of the Court's decision or order. Penalties shall be paid into this account as they continue to accrue, at least every 60 days. Within 30 days of receipt of the final appellate court decision, the escrow agent shall pay the balance of the account to EPA or to Settling Defendants to the extent that they prevail.

78. If Settling Defendants fail to pay stipulated penalties when due, Settling Defendants shall pay Interest on the unpaid stipulated penalties as follows: (a) if Settling Defendants have timely invoked dispute resolution such that the obligation to pay stipulated penalties has been stayed pending the outcome of dispute resolution, Interest shall accrue from the date stipulated penalties are due pursuant to Paragraph 77 until the date of payment: and (b) if Settling Defendants fail to timely invoke dispute resolution, Interest shall accrue from the date of demand under Paragraph 76 until the date of payment. If Settling Defendants fail to pay stipulated penalties and Interest when due, the United States may institute proceedings to collect the stipulated penalties and Interest.

79. The payment of penalties and Interest, if any, shall not alter in any way the Settling Defendants' obligation to complete the performance of the Work required under this Consent Decree.

80. Nothing in this Consent Decree shall be construed as prohibiting, altering, or in any way limiting the ability of the United States to seek any other remedies or sanctions available by virtue of Settling Defendants' violation of this Consent Decree or of the statutes and regulations upon which it is based, including, but not limited to, penalties pursuant to Section 122(l) of CERCLA, 42 U.S.C. § 9622(l), provided, however, that the United States shall not seek civil penalties pursuant to Section 122(l) of CERCLA for any violation for which a stipulated penalty is provided in this Consent Decree, except in the case of a willful violation of this Consent Decree.

81. Notwithstanding any other provision of this Section, the United States may, in its unreviewable discretion, waive any portion of stipulated penalties that have accrued pursuant to this Consent Decree.

XXI. Covenants by Plaintiff

82. Covenants for Settling Defendants by United States. In consideration of the actions that will be performed and the payments that will be made by Settling Defendants under this Consent Decree, and except as specifically provided in Paragraphs 83 and 84 (United States' Pre- and Post-Certification Reservations) and 86 (General Reservations of Rights), the United States covenants not to sue or to take administrative action against Settling Defendants pursuant to Sections 106 and 107(a) of CERCLA and Section 7003 of RCRA relating to the Site, except for the PICMA. Except with respect to future liability, these covenants shall take effect upon the receipt by EPA of the payment required by Paragraph 52.a (Payment by Settling Defendants for Past Response Costs) and any Interest or stipulated penalties due thereon under Paragraph 56 (Interest) or Section XX (Stipulated Penalties). With respect to future liability, these covenants shall take effect upon Certification of Completion of Remedial Action by EPA pursuant to Paragraph 49.b.2 of Section XIV (Certification of Completion). These covenants are conditioned upon the satisfactory performance by Settling Defendants of their obligations under this Consent Decree and the OU2 CD. These covenants extend only to Settling Defendants and do not extend to any other person.

83. United States' Pre-Certification Reservations. Notwithstanding any other provision of this Consent Decree, the United States reserves, and this Consent Decree is without prejudice to, the right to institute proceedings in this action or in a new action, and/or to issue an administrative order, seeking to compel Settling Defendants to perform further response actions

relating to the Site and/or to pay the United States for additional costs of response if, (a) prior to Certification of Completion of the Remedial Action, (1) conditions at the Site, previously unknown to EPA, are discovered, or (2) information, previously unknown to EPA, is received, in whole or in part, and (b) EPA determines that these previously unknown conditions or information together with any other relevant information indicates that the Remedial Action or the OU2 Remedial Action is not protective of human health or the environment.

84. United States' Post-Certification Reservations. Notwithstanding any other provision of this Consent Decree, the United States reserves, and this Consent Decree is without prejudice to, the right to institute proceedings in this action or in a new action, and/or to issue an administrative order, seeking to compel Settling Defendants to perform further response actions relating to the Site and/or to pay the United States for additional costs of response if, (a) subsequent to Certification of Completion of the Remedial Action, (1) conditions at the Site, previously unknown to EPA, are discovered, or (2) information, previously unknown to EPA , is received, in whole or in part, and (b) EPA determines that these previously unknown conditions or this information together with other relevant information indicate that the Remedial Action or the OU2 Remedial Action is not protective of human health or the environment.

85. For purposes of Paragraph 83 (United States' Pre-Certification Reservations), the information and the conditions known to EPA will include only that information and those conditions known to EPA as of the dates the OU2 and OU3 RODs were signed and set forth in the OU2 ROD and OU3 ROD and the administrative records supporting the OU2 and OU3 RODs. For purposes of Paragraph 84 (United States' Post-Certification Reservations), the information and the conditions known to EPA shall include only that information and those conditions known to EPA as of the date of Certification of Completion of the Remedial Action and set forth in the OU2 ROD and OU3 ROD, the administrative records supporting the OU2 and OU3 RODs, the post-ROD administrative records, or in any information received by EPA pursuant to the requirements of this Consent Decree or the OU2 CD prior to Certification of Completion of the Remedial Action.

86. General reservations of rights. The United States reserves, and this Consent Decree is without prejudice to, all rights against Settling Defendants with respect to all matters not expressly included within Plaintiff's covenants. Notwithstanding any other provision of this Consent Decree, the United States reserves all rights against Settling Defendants with respect to:

a. liability for failure by Settling Defendants to meet a requirement of this Consent Decree or the OU2 CD;

b. liability arising from the past, present, or future disposal, release, or threat of release of Waste Material outside of the Site;

c. liability based on the ownership of the Site by Settling Defendants or any portion thereof by any of the Settling Defendants when such ownership commences after signature of this Consent Decree by Settling Defendants;

d. liability based on the operation of the Site by Settling Defendants when such operation commences after signature of this Consent Decree by Settling Defendants and does not arise solely from Settling Defendant's performance of the Work or OU2 Work;

e. liability based on Settling Defendants' transportation, treatment, storage, or disposal, or arrangement for the transportation, treatment, storage, or disposal of Waste Material at or in connection with the Site, other than as provided in the ROD, the Work, OU2 Work, or otherwise ordered by EPA, after signature of this Consent Decree;

f. liability for damages for injury to, destruction of, or loss of natural resources, and for the costs of any natural resource damage assessments;

g. criminal liability;

h. liability for violations of federal or state law which occur during or after implementation of the Work or the OU2 Work;

i. liability, prior to Certification of Completion of the Remedial Action, for additional response actions that EPA determines are necessary to achieve and maintain Performance Standards or to carry out and maintain the effectiveness of the remedy set forth in the ROD or the OU2 ROD, but that cannot be required pursuant to Paragraph 13 (Modification of SOW or Related Work Plans) of this Consent Decree or Paragraph 13 of the OU2 CD;

j. liability for response actions for the PICMA;

k. liability for costs that the United States will incur related to the PICMA;

l. liability for response actions for the Berry's Creek Study Area and/or costs that the United States will incur related to the Berry's Creek Study Area, as the term "Berry's Creek Study Area" is defined in the Berry's Creek Study Area RI/FS AOC; and

m. liability for OU2 Future Oversight Costs as defined in the OU2 CD.

87. Work Takeover.

a. In the event EPA determines that Settling Defendants have (1) ceased implementation of any portion of the Work, or (2) are seriously or repeatedly deficient or late in their performance of the Work, or (3) are implementing the Work in a manner that may cause an endangerment to human health or the environment, EPA may issue a written notice ("Work Takeover Notice") to Settling Defendants. Any Work Takeover Notice issued by EPA will specify the grounds upon which such notice was issued and will provide Settling Defendants a period of 20 days within which to remedy the circumstances giving rise to EPA's issuance of such notice.

b. If, after expiration of the 20 day notice period specified in Paragraph 87.a, Settling Defendants have not remedied to EPA's satisfaction the circumstances giving rise to EPA's issuance of the relevant Work Takeover Notice, EPA may at any time thereafter assume the performance of all or any portion(s) of the Work as EPA deems necessary ("Work Takeover"). EPA will notify Settling Defendants in writing (which writing may be electronic) if EPA determines that implementation of a Work Takeover is warranted under this Paragraph 87.b. Funding of Work Takeover costs is addressed under Paragraph 47.

c. Settling Defendants may invoke the procedures set forth in Paragraph 67 (Record Review), to dispute EPA's implementation of a Work Takeover under Paragraph 87.b. However, notwithstanding Settling Defendants' invocation of such dispute resolution procedures, and during the pendency of any such dispute, EPA may in its sole discretion commence and continue a Work Takeover under Paragraph 87.b until the earlier of (1) the date

that Settling Defendants remedy, to EPA's satisfaction, the circumstances giving rise to EPA's issuance of the relevant Work Takeover Notice, or (2) the date that a final decision is rendered in accordance with Paragraph 67 (Record Review) requiring EPA to terminate such Work Takeover.

88. Notwithstanding any other provision of this Consent Decree, the United States retains all authority and reserves all rights to take any and all response actions authorized by law.

XXII. COVENANTS BY SETTLING DEFENDANTS

89. Covenant Not to Sue by Settling Defendants. Subject to the reservations in Paragraph 91, Settling Defendants hereby covenant not to sue and agree not to assert any claims or causes of action against the United States with respect to the Site, except for the PICMA, and this Consent Decree, including, but not limited to:

a. any direct or indirect claim for reimbursement from the Hazardous Substance Superfund (established pursuant to the Internal Revenue Code, 26 U.S.C. § 9507) through CERCLA Sections 106(b)(2), 107, 111, 112, 113 or any other provision of law;

b. any claims against the United States, including any department, agency or instrumentality of the United States under CERCLA Sections 107 or 113, RCRA Section 7002(a), 42 U.S.C. § 6972(a), or state law regarding the Site, except for the PICMA, and this Consent Decree; or

c. any claims arising out of response actions at or in connection with the Site, except for the PICMA, including any claim under the United States Constitution, the New Jersey Constitution, the Tucker Act, 28 U.S.C. § 1491, the Equal Access to Justice Act, 28 U.S.C. § 2412, as amended, or at common law.

90. Except as provided in Paragraph 98 (Res Judicata and Other Defenses), the covenants in this Section shall not apply if the United States brings a cause of action or issues an order pursuant to any of the reservations in Section XXI (Covenants by Plaintiff), other than in Paragraphs 86.a (claims for failure to meet a requirement of this Consent Decree or the OU2 CD), 86.g (criminal liability), and 86.h (violations of federal/state law during or after implementation of the Work or the OU2 Work), but only to the extent that Settling Defendants' claims arise from the same response action, response costs, or damages that the United States is seeking pursuant to the applicable reservation.

91. Settling Defendants reserve, and this Consent Decree is without prejudice to, claims against the United States, subject to the provisions of Chapter 171 of Title 28 of the United States Code, and brought pursuant to any statute other than CERCLA or RCRA and for which the waiver of sovereign immunity is found in a statute other than CERCLA or RCRA, for money damages for injury or loss of property or personal injury or death caused by the negligent or wrongful act or omission of any employee of the United States, as that term is defined in 28 U.S.C. § 2671, while acting within the scope of his or her office or employment under circumstances where the United States, if a private person, would be liable to the claimant in accordance with the law of the place where the act or omission occurred. However, the foregoing shall not include any claim based on EPA's selection of response actions, or the oversight or approval of Settling Defendants' plans, reports, other deliverables or activities.

92. Nothing in this Consent Decree shall be deemed to constitute preauthorization of a claim within the meaning of Section 111 of CERCLA, 42 U.S.C. § 9611, or 40 C.F.R. § 300.700(d).

93. Settling Defendants agree not to assert any claims and to waive all claims or causes of action (including but not limited to claims or causes of action under Sections 107(a) and 113 of CERCLA) that they may have against any person that has entered into EPA's Administrative Order on Consent (Index No. II-CERCLA-97-0106), for "matters addressed" as defined in Paragraph 57.a of that Administrative Order on Consent, except as otherwise provided in Paragraph 57.b of that Administrative Order on Consent. This waiver shall not apply with respect to any defense, claim, or cause of action that a Settling Defendant may have against any person if such person asserts a claim or cause of action relating to the Site against such Settling Defendant.

XXIII. EFFECT OF SETTLEMENT; CONTRIBUTION

94. Except as provided in Paragraph 93 (waiver of claims against *de minimis* parties), nothing in this Consent Decree shall be construed to create any rights in, or grant any cause of action to, any person not a Party to this Consent Decree. Except as provided in Paragraph 93 (waiver of claims against *de minimis* parties), each of the Parties expressly reserves any and all rights (including, but not limited to, pursuant to Section 113 of CERCLA, 42 U.S.C. § 9613), defenses, claims, demands, and causes of action which each Party may have with respect to any matter, transaction, or occurrence relating in any way to the Site against any person not a Party hereto. Nothing in this Consent Decree diminishes the right of the United States, pursuant to Section 113(f)(2) and (3) of CERCLA, 42 U.S.C. § 9613(f)(2)-(3), to pursue any such persons to obtain additional response costs or response action and to enter into settlements that give rise to contribution protection pursuant to Section 113(f)(2).

95. The Parties agree, and by entering this Consent Decree this Court finds, that this Consent Decree constitutes a judicially-approved settlement for purposes of Section 113(f)(2) of CERCLA, 42 U.S.C. § 9613(f)(2), and that each Settling Defendant is entitled, as of the Effective Date, to protection from contribution actions or claims by any person not a signatory to this Consent Decree as provided by Section 113(f)(2) of CERCLA, or as may be otherwise provided by law, for "matters addressed" in this Consent Decree. The "matters addressed" in this Consent Decree include the Work, Past Response Costs and Future Response Costs, as defined herein. Solely as to claims among themselves, the Settling Defendants agree not to assert contribution protection against each other for matters addressed in this Consent Decree, including contribution protection pursuant to CERCLA Section 113(f)(2), 42 U.S.C. § 9613(f)(2).

96. Each Settling Defendant shall, with respect to any suit or claim brought by it for matters related to this Consent Decree, notify the United States in writing no later than 60 days prior to the initiation of such suit or claim.

97. Each Settling Defendant shall, with respect to any suit or claim brought against it for matters related to this Consent Decree, notify in writing the United States within 10 days of service of the complaint on such Settling Defendant. In addition, each Settling Defendant shall notify the United States within 10 days of service or receipt of any Motion for Summary Judgment and within 10 days of receipt of any order from a court setting a case for trial.

98. Res Judicata and Other Defenses.

a. In any subsequent administrative or judicial proceeding initiated by the United States for injunctive relief, recovery of response costs, or other appropriate relief relating to the Site, Settling Defendants shall not assert, and may not maintain, any defense or claim based upon the principles of waiver, res judicata, collateral estoppel, issue preclusion, claim-splitting, or other defenses based upon any contention that the claims raised by the United States in the subsequent proceeding were or should have been brought in the instant case; provided, however, that nothing in this Paragraph affects the enforceability of the covenants not to sue set forth in Section XXI (Covenants by Plaintiff).

b. In any subsequent judicial proceeding initiated by any Settling Defendant relating to the Site, other Settling Defendants shall not assert and may not maintain against any Settling Defendant any defense or claim based upon the principles of waiver, res judicata, collateral estoppel, issue preclusion, claim-splitting, or other defenses based upon any contention that the claims raised in the subsequent proceeding were or should have been brought in the instant case; provided, however, that nothing in this Paragraph affects the enforceability of the covenants set forth in Section XXII (Covenants by Settling Defendants).

XXIV. ACCESS TO INFORMATION

99. Settling Defendants shall provide to EPA, upon request, copies of all records, documents, and other information within their possession or control or that of their contractors or agents relating to OU3 or to the implementation of this Consent Decree, including, but not limited to, sampling, analysis, chain of custody records, manifests, trucking logs, receipts, reports, sample traffic routing, correspondence, or other documents or information related to the Work. Settling Defendants shall also make available to EPA, for purposes of investigation, information gathering, or testimony, their employees, agents, or representatives with knowledge of relevant facts concerning the performance of the Work.

100. Business Confidential and Privileged Documents.

a. Settling Defendants may assert business confidentiality claims covering part or all of the records, documents, or information submitted to Plaintiff under this Consent Decree to the extent permitted by and in accordance with Section 104(e)(7) of CERCLA, 42 U.S.C. § 9604(e)(7), and 40 C.F.R. § 2.203(b). Records, documents, or information determined to be confidential by EPA will be afforded the protection specified in 40 C.F.R. Part 2, Subpart B. If no claim of confidentiality accompanies records, documents, or information when they are submitted to EPA, or if EPA has notified Settling Defendants that the records, documents, or information are not confidential under the standards of Section 104(e)(7) of CERCLA or 40 C.F.R. Part 2, Subpart B, the public may be given access to such records, documents, or information without further notice to Settling Defendants.

b. Settling Defendants may assert that certain records, documents, or information are privileged under the attorney-client privilege or any other privilege recognized by federal law. If the Settling Defendants assert such a privilege in lieu of providing records, documents, or information, they shall provide Plaintiff with the following: (1) the title of the record, document, or information; (2) the date of the record, document, or information; (3) the name, title, affiliation (e.g., company or firm), and address of the author of the record, document, or information; (4) the name and title of each addressee and recipient; (5) a description of the

contents of the record, document, or information; and (6) the privilege asserted by Settling Defendants. If a claim of privilege applies only to a portion of a record, document, or information, the record, document, or information shall be provided to the United States in redacted form to mask the privileged portion only. Settling Defendants shall retain all records, documents, and information that they claim to be privileged until the United States has had a reasonable opportunity to dispute the privilege claim and any such dispute has been resolved in Settling Defendants' favor.

c. No records, documents, or information created or generated pursuant to the requirements of this Consent Decree shall be withheld from the United States on the grounds that they are privileged or confidential.

101. No claim of confidentiality or privilege shall be made with respect to any data regarding the Site, including, but not limited to, all sampling, analytical, monitoring, hydrogeologic, scientific, chemical, or engineering data, or the portions of any other records, documents or information that evidence conditions at or around the Site.

XXV. RETENTION OF RECORDS

102. a. Until ten years after Settling Defendants' receipt of EPA's notification pursuant to Paragraph 49.c (Certification of Completion of the Work), each Settling Defendant shall preserve and retain all non-identical copies of records, documents, and other information (including records, documents, or information in electronic form) now in its possession or control or which come into its possession or control that relate in any manner to its liability under CERCLA with respect to the Site, provided, however, that any Settling Defendants who are potentially liable as an owner or operator of the Site must retain, in addition, all records, documents, and other information that relate to the liability of any other person under CERCLA with respect to the Site. Each Settling Defendant must also retain, and instruct its contractors and agents to preserve, for the same period of time specified above all non-identical copies of the last draft or final version of any records, documents, and other information (including records, documents, or information in electronic form) now in its possession or control or which come into its possession or control that relate in any manner to the performance of the Work, provided, however, that each Settling Defendant (and its contractors and agents) must retain, in addition, copies of all data generated during the performance of the Work and not contained in the aforementioned records, documents, or other information required to be retained. Each of the above record retention requirements shall apply regardless of any corporate retention policy to the contrary. If approved by the United States, Settling Defendants may elect to preserve and retain any of the documents referred to in this paragraph in electronic format only. If Settling Defendants so elect, Settling Defendants waive any objection to admissibility of such documents in evidence based on lack of an original or a hard copy of the documents.

b. For purposes of this Paragraph, EPA agrees that, as regards any Settling Defendants that make use of periodic (*e.g.*, daily, weekly, monthly) electronic disaster recovery back-up tapes or files ("Periodic Recovery Records"), such Settling Defendants are not required to preserve and retain, as non-identical records, any Periodic Recovery Records that have been copied or overwritten (without any deletion or alteration) to larger electronic disaster recovery back-up tapes or files ("Recovery Archives") that span greater time periods (*e.g.*, weekly, monthly, yearly, biennial). In such cases, the Periodic Recovery Records do not qualify as non-

identical copies of the Recovery Archives and such Settling Defendants need only preserve and retain Recovery Archives for the period specified above.

103. At the conclusion of this record retention period, the Settling Defendants shall notify the United States at least 60 days prior to the destruction of any such records, documents, or information, and, upon request by the United States, the Settling Defendants shall deliver any such records, documents, or information to EPA. Settling Defendants may assert that certain records, documents, or information are privileged under the attorney-client privilege or any other privilege recognized by federal law. If Settling Defendants assert such a privilege, they shall provide Plaintiff with the following: (a) the title of the record, document, or information; (b) the date of the record, document, or information; (c) the name, title, affiliation (e.g., company or firm), and address of the author of the record, document, or information; (d) the name and title of each addressee and recipient; (e) a description of the subject of the record, document, or information; and (f) the privilege asserted by Settling Defendants. If a claim of privilege applies only to a portion of a record, document, or information, the record, document, or information shall be provided to the United States in redacted form to mask the privileged portion only. Settling Defendants shall retain all records, documents, or information that they claim to be privileged until the United States has had a reasonable opportunity to dispute the privilege claim and any such dispute has been resolved in Settling Defendants' favor. However, no records, document, or information created or generated pursuant to the requirements of this Consent Decree shall be withheld on the grounds that they are privileged or confidential.

104. Each Settling Defendant hereby certifies individually that, to the best of its knowledge and belief, after thorough inquiry, it has not mutilated, discarded, destroyed or otherwise disposed of any records, documents, or information (other than identical copies and Periodic Recovery Records described in Paragraph 102.b, above) relating to its potential liability regarding the Site since the earlier of notification of potential liability by the United States or the State or the filing of suit against it regarding the Site and that it has fully complied with any and all EPA requests for information regarding the Site pursuant to Sections 104(e) and 122(e) of CERCLA, 42 U.S.C. §§ 9604(e) and 9622(e), and Section 3007 of RCRA, 42 U.S.C. § 6927.

XXVI. NOTICES AND SUBMISSIONS

105. Whenever, under the terms of this Consent Decree, written notice is required to be given or a report or other document is required to be sent by one Party to another, it shall be directed to the individuals at the addresses specified below, unless those individuals or their successors give notice of a change to the other Parties in writing. All notices and submissions shall be considered effective upon receipt, unless otherwise provided. Written notice as specified in this Section shall constitute complete satisfaction of any written notice requirement of the Consent Decree with respect to the United States, EPA and the Settling Defendants, respectively. Notices required to be sent to EPA, and not to the United States, under the terms of this Consent Decree should not be sent to the U.S. Department of Justice.

As to the United States:

Chief, Environmental Enforcement Section
Environment and Natural Resources Division
U.S. Department of Justice
P.O. Box 7611

Washington, D.C. 20044-7611
Re: Scientific Chemical Processing Superfund Site, Carlstadt, N.J., DJ # 90-11-2-495/2

As to EPA:

New Jersey Remediation Branch
Emergency and Remedial Response Division
U.S. EPA Region 2
290 Broadway, 19th Floor
New York, NY 10007-1866
Attn: Project Manager - Scientific Chemical Processing Superfund Site, Carlstadt, N.J.

As to the Regional Financial Management Officer:

Chief, Financial Management Branch
U.S. EPA, Region 2
290 Broadway, 29th Floor
New York, NY 10007-1866

As to the State:

New Jersey Department of Environmental Protection
P.O. Box 028
401 East State Street, 5th Floor
Trenton, NJ 08625

As to Settling Defendants:

William L. Warren, Esq.
Drinker Biddle & Reath LLP
105 College Road East
Suite 300
P.O. Box 627
Princeton, New Jersey 08542-0627

XXVII. RETENTION OF JURISDICTION

106. This Court retains jurisdiction over both the subject matter of this Consent Decree and Settling Defendants for the duration of the performance of the terms and provisions of this Consent Decree for the purpose of enabling any of the Parties to apply to the Court at any time for such further order, direction, and relief as may be necessary or appropriate for the construction or modification of this Consent Decree, or to effectuate or enforce compliance with its terms, or to resolve disputes in accordance with Section XIX (Dispute Resolution).

XXVIII. APPENDICES

107. The following appendices are attached to and incorporated into this Consent Decree:

"Appendix A" is the ROD.

"Appendix B" is the SOW.

"Appendix C" is the map of the Site.

"Appendix D" is the Performance Guarantee.

"Appendix E" is the List of Settling Defendants.

XXIX. COMMUNITY RELATIONS

108. If requested by EPA, Settling Defendants shall participate in community relations activities pursuant to the community relations plan to be developed by EPA. EPA will determine the appropriate role for the Settling Defendants under the Plan. Settling Defendants shall also cooperate with EPA in providing information regarding the Work to the public. As requested by EPA, Settling Defendants shall participate in the preparation of such information for dissemination to the public and in public meetings which may be held or sponsored by EPA to explain activities at or relating to the Site. Costs incurred by the United States under this Section, including the costs of any technical assistance grant under Section 117(e) of CERCLA, 42 U.S.C. § 9617(e), shall be considered Future Response Costs that Settling Defendants shall pay pursuant to Section XVI (Payments for Response Costs).

XXX. MODIFICATION

109. Except as provided in Paragraph 13 (Modification of SOW or Related Work Plans), material modifications to this Consent Decree, including the SOW, shall be in writing, signed by the United States and Settling Defendants, and shall be effective upon approval by the Court. Except as provided in Paragraph 13 (Modification of SOW or Related Work Plans), non-material modifications to this Consent Decree, including the SOW, shall be in writing and shall be effective when signed by duly authorized representatives of the United States and Settling Defendants. A modification to the SOW shall be considered material if it fundamentally alters the basic features of the selected remedy within the meaning of 40 C.F.R. 300.435(c)(2)(ii). Before providing its approval to any modification to the SOW, the United States will provide the State with a reasonable opportunity to review and comment on the proposed modification.

110. Nothing in this Consent Decree shall be deemed to alter the Court's power to enforce, supervise or approve modifications to this Consent Decree.

XXXI. LODGING AND OPPORTUNITY FOR PUBLIC COMMENT

111. This Consent Decree shall be lodged with the Court for a period of not less than 30 days for public notice and comment in accordance with Section 122(d)(2) of CERCLA, 42 U.S.C. § 9622(d)(2), and 28 C.F.R. §50.7. The United States reserves the right to withdraw or withhold its consent if the comments regarding the Consent Decree disclose facts or considerations which indicate that the Consent Decree is inappropriate, improper, or inadequate. The Settling Defendants consent to the entry of this Consent Decree without further notice.

112. If for any reason the Court should decline to approve this Consent Decree in the form presented, this agreement is voidable at the sole discretion of any Party and the terms of the agreement may not be used as evidence in any litigation between the Parties. If this Consent Decree is not entered by the Court for any reason, the Parties agree that any activities of the Settling Defendants approved by EPA and conducted in compliance with the provisions of this Consent Decree shall be deemed to be consistent with the NCP as provided in Paragraph 7.

XXXII. SIGNATORIES/SERVICE

113. Each undersigned representative of a Settling Defendant to this Consent Decree and the Assistant Attorney General for the Environment and Natural Resources Division of the Department of Justice certifies that he or she is fully authorized to enter into the terms and conditions of this Consent Decree and to execute and legally bind such Party to this document.

114. Each Settling Defendant hereby agrees not to oppose entry of this Consent Decree by this Court or to challenge any provision of this Consent Decree unless the United States has notified the Settling Defendants in writing that it no longer supports entry of the Consent Decree.

115. Each Settling Defendant shall identify, on the attached signature page, the name, address and telephone number of an agent who is authorized to accept service of process by mail on behalf of that Party with respect to all matters arising under or relating to this Consent Decree. Settling Defendants agree to accept service in that manner and to waive the formal service requirements set forth in Rule 4 of the Federal Rules of Civil Procedure and any applicable local rules of this Court, including, but not limited to, service of a summons. The Parties agree that the Settling Defendants need not file an answer to the complaint in this action unless or until the Court expressly declines to enter this Consent Decree.

XXXIII. FINAL JUDGMENT

116. This Consent Decree and its appendices constitute the final, complete, and exclusive agreement and understanding among the Parties regarding the settlement embodied in the Consent Decree. The Parties acknowledge that there are no representations, agreements or understandings relating to the settlement other than those expressly contained in this Consent Decree.

117. Upon entry of this Consent Decree by the Court, this Consent Decree shall constitute a final judgment between and among the United States and Settling Defendants. The Court enters this judgment as a final judgment under Fed. R. Civ. P. 54 and 58.

SO ORDERED THIS __ DAY OF _____, 2013.

_____

United States District Judge

THE UNDERSIGNED PARTY enters into this Consent Decree in this action captioned United States v. 3M Company, et al. (D.N.J.), regarding the Scientific Chemical Processing Superfund Site:

FOR THE UNITED STATES OF AMERICA

_____ _____

Date

ROBERT G. DREHER
Acting Assistant Attorney General
Environment and Natural Resources Division

_____ _____

Date

ELIZABETH YU
Environmental Enforcement Section
Environment & Natural Resources Division
U.S. Department of Justice
P.O. Box 7611
Washington, D.C. 20044-7611
(202) 514-2277

PAUL J. FISHMAN
United States Attorney
District of New Jersey

ALLAN URGENT
Assistant United States Attorney
District of New Jersey
Peter Rodino Federal Building
970 Broad Street, Suite 700
Newark, NJ 07102

SEP 26 2013

Date

WALTER MUGDAN, Director
Emergency and Remedial Response Division
U.S. Environmental Protection Agency
290 Broadway
New York, NY 10007-1866

SEP 26 2013

Date

DAMARIS C. URDAZ
Assistant Regional Counsel
U.S. Environmental Protection Agency
290 Broadway
New York, NY 10007-1866

THE UNDERSIGNED PARTY enters into this Consent Decree in this action captioned United States v. 3M Company, et al., (D.N.J.), regarding the Scientific Chemical Processing Superfund Site:

FOR: _____

_____
Date

Signature: _____

Name (print): _____

Title: _____

Address: _____
_____
_____
_____

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): _____

Title: _____

Address: _____
_____
_____

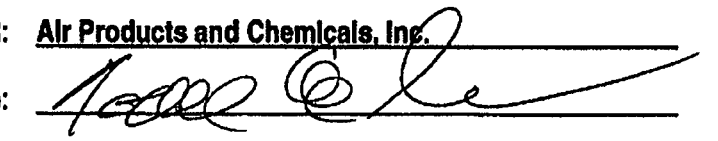
Ph. Number: _____

email: _____

THE UNDERSIGNED PARTY enters into this Consent Decree in this action captioned United States v. Air Products and Chemicals, Inc., et al., (D.N.J.), regarding the Scientific Chemical Processing Superfund Site, Carlstadt, N.J.:

FOR: **Air Products and Chemicals, Inc.**

September 9, 2013
Date:

Signature: 

Name (print): Todd E. Solodar, Esq.

Title: Senior EH&S Counsel

Address: Air Products and Chemicals, Inc.
7201 Hamilton Blvd.
Allentown, PA 18195-1501

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): The Corporation Trust Company

Address: 820 Bear Tavern Rd.
West Trenton, NJ 08628

Ph. Number: 609-538-1818

Email: N/A

THE UNDERSIGNED PARTY enters into this Consent Decree in this action captioned United States v. Air Products and Chemicals, Inc., et al., (D.N.J.), regarding the Scientific Chemical Processing Superfund Site, Carlstadt, N.J.:

FOR: **Akzo Nobel Coatings Inc., successor-in-interest to Reliance Universal, Inc.**

08.12.2013
Date:

Signature:

Name (print): CHARLES SCHERMER

Title: VICE PRESIDENT & SECRETARY

08.12.2013
Date:

Signature:

Name (print): JASON Pollack

Title: ASSISTANT Secretary

Address: Akzo Nobel Coatings Inc.
525 W. Van Buren
Chicago, IL 60137

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): CT Corporation

Address: 111 Eighth Ave
13th Floor
New York, NY 10011

With Copy to:

Name (print): Katherine Rahill, Esq.

Title: Senior Legal Counsel, HSE & RA

Address: Akzo Nobel Coatings Inc.
525 W. Van Buren
Chicago, IL 60137

Ph. Number: 312-544-7381

Email: katherine.rahill@akzonobel.com

THE UNDERSIGNED PARTY enters into this Consent Decree in this action captioned United States v. Air Products and Chemicals, Inc., et al., (D.N.J.), regarding the Scientific Chemical Processing Superfund Site, Carlstadt, N.J.:

FOR: **Alcatel-Lucent USA Inc., formerly known as Lucent Technologies Inc., as successor in interest to and on behalf of Western Electric Company, Inc.; AT&T Corp.; and AT&T Technologies, Inc.**

9-12-13
Date:

Signature:

Name (print): Gary M. Fisher

Title: Remediation Manager

Address: Alcatel-Lucent USA Inc.
600 Mountain Avenue, Room 7D-401
Murray Hill, NJ 07974

Email: gary.fisher@alcatel-lucent.com

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): Alexis P. Mendoza, Esq.

Title: Corporate Counsel for Alcatel-Lucent USA Inc.

Address: Alcatel-Lucent USA Inc.
Law Department
600 Mountain Avenue, Room 7D-401
Murray Hill, NJ 07974

Ph. Number:

Email:

With a Copy to:

Name (print): Kathleen M. Whitby, Esq.

Title: Outside Counsel for Alcatel-Lucent USA Inc.

Address: Spencer Fane Britt & Brown LLP
1 North Brentwood, Suite 1000
St. Louis, MO 63103

Ph. Number: 314-863-7733

Email: kwhitby@spencerfane.com

THE UNDERSIGNED PARTY enters into this Consent Decree in this action captioned United States v. Air Products and Chemicals, Inc., et al., (D.N.J.), regarding the Scientific Chemical Processing Superfund Site, Carlstadt, N.J.:

FOR: **ARKEMA INC., f/k/a ATOFINA Chemicals, Inc., for its predecessors Pennwalt Corporation and M&T Chemicals, Inc.**

9-10-13
Date:

Signature: Danny R. Kite

Name (print): Danny R. Kite

Title: President - Legacy Site Services LLC
(Agent for Arkema Inc.)

Address: c/o Legacy Site Services LLC
468 Jones Way, Suite 150
Exton, PA 19341-2528

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): Paula Martin, Esq.

Title: Of Counsel

Address: Legacy Site Services LLC
468 Jones Way, Suite 150
Exton, PA 19341-2528

Ph. Number: 856-596-7655

Email: paula.martin@total.com

THE UNDERSIGNED PARTY enters into this Consent Decree in this action captioned United States v. Air Products and Chemicals, Inc., et al., (D.N.J.), regarding the Scientific Chemical Processing Superfund Site, Carlstadt, N.J.:

FOR: **Ashland Inc. on behalf of itself and its wholly owned subsidiary ISP Environmental Services, Inc.**

9/13/13
Date:

Signature: _____

Name (print): Robin E. Lampkin, Esq.

Title: Senior Group Counsel
Ashland, Inc.

Address: 5200 Blazer Parkway
Dublin, OH 43017

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): **Same as Above**

Title:

Address:

Ph. Number: 614-790-3019

Email: relampkin@ashland.com

THE UNDERSIGNED PARTY enters into this Consent Decree in this action captioned United States v. Air Products and Chemicals, Inc., et al., (D.N.J.), regarding the Scientific Chemical Processing Superfund Site, Carlstadt, N.J.:

FOR: **Avantor Performance Materials, Inc. f/k/a Mallinckrodt Baker, Inc. f/k/a JT Baker Chemical Co.**

Date: 9/13/13

Signature: _____

Name (print): Michael F. Rettig, Esq.

Title: Executive Vice-President, General Counsel

Address: 3477 Corporate Parkway, Center Valley, PA 18034

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): Jane McGregor, Esq.

Title: Director & Associate General Counsel
Global -Health, Safety & Environmental

Address: Procter & Gamble
299 East Sixth Street (S9-106)
Cincinnati, OH 45202

Ph. Number: 513-983-5448

Email: mcgregor.jc@pg.com

THE UNDERSIGNED PARTY enters into this Consent Decree in this action captioned United States v. Air Products and Chemicals, Inc., et al., (D.N.J.), regarding the Scientific Chemical Processing Superfund Site, Carlstadt, N.J.:

FOR: **Avery Dennison Corporation (Successor to PAXAR Americas LLC)**

Sept. 9, 2013
Date

Signature: Ed Hribar

Name (print): Ed Hribar

Title: Vice President, Environment Health & Safety

Address: Avery Dennison Corporation
8080 Norton Parkway
Mentor, OH 44061

Email: ed.hribar@averydennison.com

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): Ms. Carol Hallen

Title:

Address: Avery Dennison Corporation
8080 Norton Parkway
Mentor, OH 44061

Ph. Number:

Email: carol.hallen@averydennison.com

THE UNDERSIGNED PARTY enters into this Consent Decree in this action captioned United States v. Air Products and Chemicals, Inc., et al., (D.N.J.), regarding the Scientific Chemical Processing Superfund Site, Carlstadt, N.J.:

FOR: **BASF Corporation, on its own behalf, and as successor to the former Ciba Corporation**

September 10, 2013
Date:

Signature:

Name (print): Steven J. Goldberg, Esq.

Title: Vice President & Associate General Counsel
Regulatory & Governmental Affairs

Address: BASF Corporation
100 Park Avenue
Florham Park, NJ 07932

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): Nan Bernardo, Esq.

Title: Senior Environmental Counsel

Address: BASF Corporation
100 Park Avenue
Florham Park, NJ 07932

Ph. Number: 973-245-6050

Email: nan.bernardo@basf.com

THE UNDERSIGNED PARTY enters into this Consent Decree in this action captioned United States v. Air Products and Chemicals, Inc., et al., (D.N.J.), regarding the Scientific Chemical Processing Superfund Site, Carlstadt, N.J.:

FOR: **Benjamin Moore & Co. (for itself and as successor to the former Technical Coating Co.)**

SEPTEMBER 16, 2013
Date:

Signature: Marc L. Zoldessy

Name (print): Marc L. Zoldessy, Esq.

Title: Assistant General Counsel

Address: Benjamin Moore & Co.
101 Paragon Drive
Montvale, NJ 07645

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): Same as Above.

Title:

Address:

Ph. Number: 201-949-6318

Email: marc.zoldessy@benjaminmoore.com

THE UNDERSIGNED PARTY enters into this Consent Decree in this action captioned United States v. Air Products and Chemicals, Inc., et al., (D.N.J.), regarding the Scientific Chemical Processing Superfund Site, Carlstadt, N.J.:

Sept. 9, 2013
Date:

FOR: Ber Mar Manufacturing Corp.

Signature: _____

Name (print): Alfred Guercio

Title: President

Address: 110 Third Avenue
Brooklyn, NY 11217

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): Martin B. Wasser, Esq.

Title: Counsel for Ber Mar Manufacturing Corp.

Address: Phillips Nizer, LLP
666 Fifth Avenue
New York, NY 10103-0084

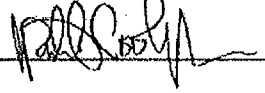
Ph. Number: 212-977-9700, 212-841-0794 Direct

Email: mwasser@phillipsnizer.com

THE UNDERSIGNED PARTY enters into this Consent Decree in this action captioned United States v. Air Products and Chemicals, Inc., et al., (D.N.J.), regarding the Scientific Chemical Processing Superfund Site, Carlstadt, N.J.:

FOR: **Bristol-Myers Squibb Company, successor to E. R. Squibb & Sons, Inc.**

Sept 11, 2013
Date:

Signature: 

Name (print): J. Richard Pooler, Jr., Esq.

Title: Assistant General Counsel, EH&S

Address: Bristol-Myers Squibb Company
6000 Thompson Road
East Syracuse, NY 13057

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): Glen R. Stuart, Esq.

Title: Outside Counsel for Bristol-Myers Squibb Company

Address: Morgan, Lewis & Bockius, LLP
1701 Market Street
Philadelphia, PA 19103-2921

Ph. Number: 215-963-5000

Email: gstuart@morganlewis.com

THE UNDERSIGNED PARTY enters into this Consent Decree in this action captioned United States v. Air Products and Chemicals, Inc., et al., (D.N.J.), regarding the Scientific Chemical Processing Superfund Site, Carlstadt, N.J.:

FOR: **Browning-Ferris Industries of New Jersey, Inc. for itself and for CECOS International, Inc. and Browning-Ferris Industries of New York, Inc. as successor by merger to Newco Waste Systems, Inc.**

9/10/2013
Date:

Signature: _____

Name (print): Tim M. Benter, Esq.

Title: Vice President and Deputy General Counsel

Address: Republic Services, Inc.
18500 North Allied Way
Phoenix, AZ 85054

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): Jeffrey N. Martin, Esq., Partner

Title: Karma B. Brown, Esq., Counsel

Address: Hunton & Williams, LLP
2200 Pennsylvania Avenue, NW
Washington, D.C. 20037

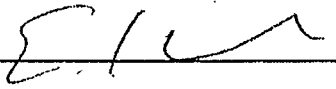
Ph. Number: 202-955-1500

Email: jmartin@hunton.com;
kbbrown@hunton.com

THE UNDERSIGNED PARTY enters into this Consent Decree in this action captioned United States v. Air Products and Chemicals, Inc., et al., (D.N.J.), regarding the Scientific Chemical Processing Superfund Site, Carlstadt, N.J.:

FOR: **CBS Corporation, formerly known as Viacom Inc., successor in interest to CBS Inc.**

September 13, 2013
Date:

Signature: 

Name (print): Eric J. Sobczak

Title: Senior Vice President & Associate General Counsel

Address: 20 Stanwix Street, 10th Floor

Pittsburgh, PA 15222

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): Same as above.

Title:

Address:

Ph. Number: 412-642-5633

Email: eric.sobczak@cbs.com

THE UNDERSIGNED PARTY enters into this Consent Decree in this action captioned United States v. Air Products and Chemicals, Inc., et al., (D.N.J.), regarding the Scientific Chemical Processing Superfund Site, Carlstadt, N.J.:

9/9/2013
Date:

FOR: **Chemcoat Inc.**

Signature: Jeffrey D Hursh

Name (print): Jeffrey D. Hursh

Title: EH&S / HR Manager

Address: Chemcoat, Inc.
2790 Canfields Lane (or P.O. Box 188)
Montoursville, PA 17754

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): Same as above.

Title:

Address:

Ph. Number: 570-368-8631

Email: jhursh@chemcoat.com

THE UNDERSIGNED PARTY enters into this Consent Decree in this action captioned United States v. Air Products and Chemicals, Inc., et al., (D.N.J.), regarding the Scientific Chemical Processing Superfund Site, Carlstadt, N.J.:

FOR: **CNA Holdings LLC (formerly American Hoechst Corporation, merged into Celanese Corporation, now known as CNA Holdings LLC)**

9-12-13
Date:

Signature: Gary M. Rowen

Name (print): Gary M. Rowen

Title: Assistant Secretary

Address: 222 W. Las Colinas Blvd., Suite 900N

Irving, TX 75039

9-12-13

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): CT Corporation

Title: Service of Process Info

Address: 350 N Saint Paul St, Suite 2900

Dallas, TX 75201-4240

Ph. Number: (214) 979-1172

Email: cls-dallasteam2@wkglobal.com

THE UNDERSIGNED PARTY enters into this Consent Decree in this action captioned United States v. Air Products and Chemicals, Inc., et al., (D.N.J.), regarding the Scientific Chemical Processing Superfund Site, Carlstadt, N.J.:

FOR: **Continental Holdings Inc. (as successor in interest for certain limited purposes to Continental Can Company, Inc.)**

9/12/13
Date:

Signature:

Name (print): RYAN McMANIS

Title: SR. CORPORATE COUNSEL

Address: 1025 ELDORADO BLVD
BROOMFIELD, CO 80021

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): Alan S. Golub

Title: Outside Counsel

Address: Golub & Isabel, P.C.
160 Littleton Rd., Suite 300, Parsippany NJ 07054

Ph. Number: 973 968 3377

Email: asgolub@golub-isabel.com

THE UNDERSIGNED PARTY enters into this Consent Decree in this action captioned United States v. Air Products and Chemicals, Inc., et al., (D.N.J.), regarding the Scientific Chemical Processing Superfund Site, Carlstadt, N.J.:

9/11/13
Date:

FOR: Cycle Chem, Inc.

Signature: [signature]

Name (print): Michael Persico

Title: President

Address: Cycle Chem, Inc.
201 South First Street
Elizabeth, NJ 07206

Email: michael.persico@cyclechem.com

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): Michael Persico

Title: President

Address: Cycle Chem, Inc.
201 South First Street
Elizabeth, NJ 07206

Ph. Number 908-355-5800 ext. 2003

With a copy to:

Name (print): Mark C. Kelly, Esq.

Title: Counsel for Cycle Chem, Inc.

Address: 122 E. 42 Street, Suite 4400
New York, NY 10168

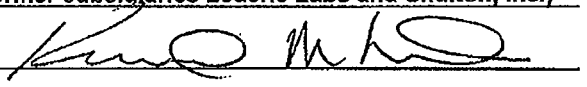
Ph. Number: 212-953-2626

Email: ojkelly@aol.com

THE UNDERSIGNED PARTY enters into this Consent Decree in this action captioned United States v. Air Products and Chemicals, Inc., et al., (D.N.J.), regarding the Scientific Chemical Processing Superfund Site, Carlstadt, N.J.:

FOR: **Cytec Industries Inc. as Indemnitor for Wyeth Holdings Corp., formerly known as American Cyanamid Company (on behalf of itself and its former subsidiaries Lederle Labs and Shulton, Inc.)**

Sept 23/2013
Date:

Signature: 

Name (print): Kenneth Milo

Title: Remediation Manager

Address: CYTEC Industries Inc.
Woodland Park, NJ 07424

Email: ken.milo@cytec.com

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): The Corporation Trust Company

Title: 820 Bear Tavern Road

Address: West Trenton, NJ 08628

Ph. Number: 609-538-1818

Email: N/A

THE UNDERSIGNED PARTY enters into this Consent Decree in this action captioned United States v. Air Products and Chemicals, Inc., et al., (D.N.J.), regarding the Scientific Chemical Processing Superfund Site, Carlstadt, N.J.:

Date: 9/10/13

FOR: **Dri-Print Foils, Inc.**

Signature: _____

Name (print): Mark L. Manewitz, Esq.

Title: Attorney for Dri Print Foils

Address: 502 Carnegie Center, Room 201

Princeton, NJ
08450

Email: mmanewitz@gmail.com

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): Thomas C. McGowan, Esq.

Title: Counsel for Dri Print Foils, Inc.

Address: McGrath North Mullin & Kratz, P.C., LLO

First National Tower, Suite 3700

1601 Dodge Street

Omaha, NE
68102

Ph. Number: 402-341-3070

Email: tmcgowan@mcgrathnorth.com

THE UNDERSIGNED PARTY enters into this Consent Decree in this action captioned United States v. Air Products and Chemicals, Inc., et al., (D.N.J.), regarding the Scientific Chemical Processing Superfund Site, Carlstadt, N.J.:

9/9/2013
Date:

FOR: **E. I. du Pont de Nemours and Company**

Signature: Bernard J Reilly

Name (print): Bernard J. Reilly, Esq.

Title: Corporate Counsel

Address: DuPont Legal, D-7082A
1007 Market Street
Wilmington, DE 19898

Email: bernard.j.reilly@usa.dupont.com

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print):

Title: Chief Counsel, Environment Group

Address: DuPont Legal D-8088
1007 Market Street
Wilmington, DE 19898

Ph. Number: 302-774-4028

Email: martha.b.rees@dupont.com

THE UNDERSIGNED PARTY enters into this Consent Decree in this action captioned United States v. Air Products and Chemicals, Inc., et al., (D.N.J.), regarding the Scientific Chemical Processing Superfund Site, Carlstadt, N.J.:

FOR: **Exxon Mobil Corporation/ExxonMobil Oil Corporation**

September 3, 2013
Date:

Signature: Robert W. Jackmore

Name (print): Robert W. Jackmore

Title: Agent and Attorney in Fact

Address: 3225 Gallows Rd

Fairfax, VA 22037

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): Michael J. Skinner

Title: Consultant

Address: 230 Kings Highway East, Ste 300

Haddonfield, NJ 08033

Ph. Number: 856-429-5336

Email: mjs@superfundmangement.com

THE UNDERSIGNED PARTY enters into this Consent Decree in this action captioned United States v. Air Products and Chemicals, Inc., et al., (D.N.J.), regarding the Scientific Chemical Processing Superfund Site, Carlstadt, N.J.:

FOR: **General Electric Company, for itself and as successor to and for Radio Corporation of America (RCA)**

10 Sept 2013
Date:

Signature:

Name (print): Lisa Hamilton

Title: Executive Manager, Environmental Remediation

Address: GE Corporate Environmental Programs
640 Freedom Business Center
King of Prussia, PA 19406

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): CT Corporation System

Title: N/A

Address: 1515 Market Street, Suite 1210
Philadelphia, PA 19406

Ph. Number: 215-563-7750

Email:

THE UNDERSIGNED PARTY enters into this Consent Decree in this action captioned United States v. Air Products and Chemicals, Inc., et al., (D.N.J.), regarding the Scientific Chemical Processing Superfund Site, Carlstadt, N.J.:

FOR: **GlaxoSmithKline, LLC (on behalf of itself and its predecessor SmithKline Beecham Corporation)**

Sept. 9, 2013
Date:

Signature:

Name (print): Justin T. Huang, Esq.

Title: Assistant Secretary

Address: GlaxoSmithKline, LLC
Five Crescent Drive, Mail Code NY0300
Philadelphia, PA 19112

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): Douglas S. Finan, Esq.

Title: Director, EHS Regulatory Affairs & Product Stewardship

Address: GlaxoSmithKline, LLC
P.O. Box 13398 or Five Moore Dr.
Raleigh Triangle Park, NC 27709-3398

Ph. Number: 919-483-5813

Email: doug.s.finan@gsk.com

THE UNDERSIGNED PARTY enters into this Consent Decree in this action captioned United States v. Air Products and Chemicals, Inc., et al., (D.N.J.), regarding the Scientific Chemical Processing Superfund Site, Carlstadt, N.J.:

FOR: Goodrich Corporation, a UTC Aerospace Systems Company, on behalf of Monroe Chemical, Inc.

9/12/13
Date:

Signature:

Name (print): Peter A. Gutermann, Esq.

Title: Vice President and General Counsel

Address: UTC Propulsion & Aerospace Systems
One Financial Plaza, MS 523
Hartford, CT 06103

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): Brian C. Freeman, Esq.

Title: Counsel for Goodrich Corporation

Address: Robinson & Cole LLP
280 Trumbull Street
Hartford, CT 06103

Ph. Number: 860-275-8310

Email: bfreeman@rc.com

THE UNDERSIGNED PARTY enters into this Consent Decree in this action captioned United States v. Air Products and Chemicals, Inc., et al., (D.N.J.), regarding the Scientific Chemical Processing Superfund Site, Carlstadt, N.J

FOR: **HCR ManorCare, Inc., for itself and on behalf of Manor Care of America, Inc., ManorCare Health Services, Inc. (f/k/a Manor Healthcare Corp.), and Portfolio One, Inc. (f/k/a and successor in interest to Chemlime, Inc., and Almo Anti Pollution, Inc.)**

9/11/13
Date:

Signature: _____

Name (print): Richard A. Parr II, Esq.

Title: Vice President, Secretary and General Counsel, HCR ManorCare, Inc.

Address: 333 North Summit Street
Toledo, Ohio 43604

Email: _____

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): The Corporation Trust Company

Title: N/A

Address: 1209 Orange Street
Wilmington, DE 19801

Ph. Number: 866-809-1134

With a Copy to:

Name (print): Barbara H. Kelly, Esq.

Title: Outside Counsel for HCR Manorcare, Inc.

Address: Wilson Elser Moskowitz Edelman & Dicker LLP
200 Campus Drive
Florham Park, NJ 07932-0668

Ph. Number: 973-735-5765

Email: barbara.kelly@wilsonelser.com

THE UNDERSIGNED PARTY enters into this Consent Decree in this action captioned United States v. Air Products and Chemicals, Inc., et al., (D.N.J.), regarding the Scientific Chemical Processing Superfund Site, Carlstadt, N.J.:

9/16/13
Date:

FOR: Hoffmann-La Roche Inc.

Signature: 

Name (print): Frederick C. Kentz, III

Title: Vice President & General Counsel

Address: Hoffmann-La Roche, Inc.
340 Kingsland Street
Nutley, NJ 07110

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): John H. Klock, Esq.

Title: Counsel for Hoffmann-La Roche, Inc.

Address: Gibbons, P.C.
One Gateway Center
Newark, NJ 07102

Ph. Number: 973-596-4500

Email: jklock@gibbonslaw.com

THE UNDERSIGNED PARTY enters into this Consent Decree in this action captioned United States v. Air Products and Chemicals, Inc., et al., (D.N.J.), regarding the Scientific Chemical Processing Superfund Site, Carlstadt, N.J.:

Sept 17, 2013
Date:

FOR: **John L. Armitage & Co.**

Signature: Norman S. Armitage

Name (print): Norman S. Armitage

Title: President/Owner

Address: 545 National Drive

Gallatin, TN 37066

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): Same as above.

Title:

Address:

Ph. Number: 615-452-6556

Email: nsarmitage@johnlarmitage.com

THE UNDERSIGNED PARTY enters into this Consent Decree in this action captioned United States v. Air Products and Chemicals, Inc., et al., (D.N.J.), regarding the Scientific Chemical Processing Superfund Site, Carlstadt, N.J.:

FOR: **Johnson & Johnson, on behalf of itself and Permacel, Inc., its former subsidiary**

9/10/13
Date:

Signature: [signature]

Name (print): Rosa Amaral Ryan, Esq.

Title: Senior Counsel, Office of the General Counsel

Address: Johnson & Johnson
One Johnson & Johnson Plaza
New Brunswick, NJ 08933

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): Same as Above

Title:

Address:

Ph. Number: 732-524-3297

Email: ramaral5@its.jnj.com

THE UNDERSIGNED PARTY enters into this Consent Decree in this action captioned United States v. Air Products and Chemicals, Inc., et al., (D.N.J.), regarding the Scientific Chemical Processing Superfund Site, Carlstadt, N.J.:

FOR: **Kirker Enterprises, Inc. on behalf of itself and as successor to Decorative Industries, Inc.**

9/16/13
Date:

Signature: _____

Name (print): Jeffrey S. Hersh

Title: Chief Executive Officer

Address: 55 East 5th Street

Paterson, NJ 07524

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): Corporation Service Company

Title:

Address: 830 Bear Tavern Road

West Trenton, NJ 08628

Ph. Number:

Email:

THE UNDERSIGNED PARTY enters into this Consent Decree in this action captioned United States v. Air Products and Chemicals, Inc., et al., (D.N.J.), regarding the Scientific Chemical Processing Superfund Site, Carlstadt, N.J.:

12 September 2013
Date:

FOR: **L.E. Carpenter & Company**

Signature: _____

Name (print): Ernie Schaub

Title: President

Address: 33587 Walker Road
Avon Lake, OH 44012

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): Ernie Schaub

Title: President

Address: 33587 Walker Road
Avon Lake, OH 44012

Ph. Number: 440-930-3611

Fax: 440-930-1063

THE UNDERSIGNED PARTY enters into this Consent Decree in this action captioned United States v. Air Products and Chemicals, Inc., et al., (D.N.J.), regarding the Scientific Chemical Processing Superfund Site, Carlstadt, N.J.:

9/11/13
Date:

FOR: **LANXESS Corporation as successor in interest for this matter only to Bayer Chemicals Corporation**

Signature: [signature] o/b/o

Name (print): Robert M. Trozenski

Title: Head of IEA

Address: 111 RIDC Park West Dr
Pittsburgh PA 15275

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): Marcy L. Tenaglia

Title: Vice President, General Counsel & Secretary

Address: 111 RIDC Park West Drive
Pittsburgh, PA 15275

Ph. Number: 412-809-2229

Email: marcy.tenaglia@lanxess.com

THE UNDERSIGNED PARTY enters into this Consent Decree in this action captioned United States v. Air Products and Chemicals, Inc., et al., (D.N.J.), regarding the Scientific Chemical Processing Superfund Site, Carlstadt, N.J.:

9/10/2013
Date:

FOR: Mack Trucks, Inc.

Signature:

Name (print): Thayer Dolan, Jr.

Title: Associate General Counsel

Address: Legal Department
Volvo Group Sales & Marketing Americas
Mack Trucks Global Brand
7900 Service Road, CC2/7
Greensboro, NC 27409

Email: thayer.dolan@volvo.com

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): The Corporation Trust Company

Title: N/A

Address: 820 Bear Tavern Road
West Trenton, NJ 08628

Ph. Number: 609-358-1818

Email: N/A

THE UNDERSIGNED PARTY enters into this Consent Decree in this action captioned United States v. Air Products and Chemicals, Inc., et al., (D.N.J.), regarding the Scientific Chemical Processing Superfund Site, Carlstadt, N.J.:

9/9/13
Date:

FOR: Merck & Co., Inc.

Signature: Mark Benevenia

Name (print): Mark Benevenia, Esq.

Title: Managing Counsel, Merck & Co., Inc.

Address: Two Merck Drive – WS3W16E
Whitehouse Station, NJ 08889-0200

Email:

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): The Corporation Trust Company

Title: N/A

Address: 820 Bear Tavern Road
West Trenton, NJ 08628

Ph. Number: 609-358-1818

Email: N/A

THE UNDERSIGNED PARTY enters into this Consent Decree in this action captioned United States v. Air Products and Chemicals, Inc., et al., (D.N.J.), regarding the Scientific Chemical Processing Superfund Site, Carlstadt, N.J.:

FOR: **Momentive Specialty Chemicals Inc. (f/k/a Hexion Specialty Chemicals, Inc.), successor to Borden Chemicals, Inc. (for Borden Fabric Leather & Borden, Inc.)**

9/10/13
Date:

Signature: Karen E Koster

Name (print): Karen E. Koster, Esq.

Title: Executive Vice President - EHS

Address: 180 E. Broad Street
Columbus, OH 43215

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): Stephanie S. Couhig, Esq.

Title: Senior EHS Counsel

Address: 180 E. Broad Street
Columbus, OH 43215

Ph. Number: 614-225-3369

Email: stephanie.couhig@momentive.com

THE UNDERSIGNED PARTY enters into this Consent Decree in this action captioned United States v. Air Products and Chemicals, Inc., et al., (D.N.J.), regarding the Scientific Chemical Processing Superfund Site, Carlstadt, N.J.:

September 10, 2013
Date:

FOR: Nepera, Inc.

Signature: [signature]

Name (print): William M. Haskel, Esq.

Title: Senior Vice President & General Counsel

Address: Cambrex Corporation
One Meadowlands Plaza
East Rutherford, NJ 07073
Phone 201-804-3005, Mobile 201-404-7204

Email: bill.haskel@cambrex.com

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): Seth Levine, P.E.

Title: Senior Director – Regulatory Affairs

Address: Cambrex Corporation
One Meadowlands Plaza
East Rutherford, NJ 07073

Ph. Number: 201-804-3038

Email: seth.levine@cambrex.com

q

THE UNDERSIGNED PARTY enters into this Consent Decree in this action captioned United States v. Air Products and Chemicals, Inc., et al., (D.N.J.), regarding the Scientific Chemical Processing Superfund Site, Carlstadt, N.J.:

9-09-13
Date:

FOR: **New England Laminates Co., Inc.**

Signature: _____

Name (print): John Jongebloed

Title: President

Address: c/o Park Aerospace Technologies Corp.
486 North Oliver Rd., Building Z
Newton City/County Airport
Newton, KS 67114

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): Carol Gross, Esq.

Title: Counsel for New England Laminates Co., Inc.

Address: 79 Davenport St.
Somerville, NJ 08876

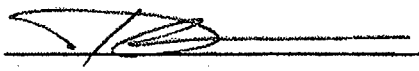
Ph. Number: 908-722-2190

Email: gross_c_a@msn.com

THE UNDERSIGNED PARTY enters into this Consent Decree in this action captioned United States v. Air Products and Chemicals, Inc., et al., (D.N.J.), regarding the Scientific Chemical Processing Superfund Site, Carlstadt, N.J.:

FOR: **Northrop Grumman Systems Corporation, successor, for itself and on behalf of Grumman Corporation**

September 12, 2013
Date:

Signature: 

Name (print): Joseph P. Kwan

Title: Director, Environmental Remediation

Address: Northrop Grumman Systems Corporation
2980 Fairview Park Drive, M/S: 12-16A
Falls Church, VA 22042-4511

Email: robert.ariatti@ngc.com
joe.kwan@ngc.com

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): The Corporation Trust Company

Address: 820 Bear Tavern Road
West Trenton, NJ 08628

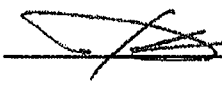
Ph. Number: 609-538-1818

Email: N/A

THE UNDERSIGNED PARTY enters into this Consent Decree in this action captioned United States v. Air Products and Chemicals, Inc., et al., (D.N.J.), regarding the Scientific Chemical Processing Superfund Site, Carlstadt, N.J.:

FOR: **Northrop Grumman Systems Corporation, successor, for itself and on behalf of Litton Industries, Inc./Fitchburg Coated Products**

September 12, 2013
Date:

Signature: 

Name (print): Joseph P. Kwan

Title: Director, Environmental Remediation

Address: Northrop Grumman Systems Corporation
2980 Fairview Park Drive, M/S: 12-16A
Falls Church, VA 22042-4511

Email: robert.ariatti@ngc.com
joe.kwan@ngc.com

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): The Corporation Trust Company

Address: 820 Bear Tavern Road
West Trenton, NJ 08628

Ph. Number: 609-538-1818

Email: N/A

THE UNDERSIGNED PARTY enters into this Consent Decree in this action captioned United States v. Air Products and Chemicals, Inc., et al., (D.N.J.), regarding the Scientific Chemical Processing Superfund Site, Carlstadt, N.J.:

FOR: **Occidental Chemical Corporation, as a successor to Diamond Shamrock Chemicals Company**

Date: 9/12/13

Signature: [signature]

Name (print): Dennis F. Blake

Title: Sr. Vice President, Business Analysis

Address: Occidental Chemical Corporation
5005 LBJ Freeway, Suite 2200
Dallas, TX 75244

Email: Dennis_F._Blake@oxy.com

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): Derrick Vallance, Esq.

Title: Assistant General Counsel

Address: Maxus Energy Corporation
1330 Lake Robbins Drive, Suite 300
The Woodlands, TX 77380

Ph. Number: 281-681-7255

Email: dvallance@maxuscorp.com

THE UNDERSIGNED PARTY enters into this Consent Decree in this action captioned United States v. Air Products and Chemicals, Inc., et al., (D.N.J.), regarding the Scientific Chemical Processing Superfund Site, Carlstadt, N.J.:

Date: Sept. 20, 2013

FOR: **Pan Technology, Inc.**

Signature: Robert Rossomando

Name (print): Robert Rossomando

Title: President

Address: 117 Moonachie Avenue
Carlstadt, NJ 07072

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): Robert Muilenburg

Title: Outside Counsel

Address: Coughlin Duffy LLP
350 Mount Kemble Avenue

Ph. Number: Morristown, NJ 07962

Email: rmuilenburg@coughlinduffy.com

THE UNDERSIGNED PARTY enters into this Consent Decree in this action captioned United States v. Air Products and Chemicals, Inc., et al., (D.N.J.), regarding the Scientific Chemical Processing Superfund Site, Carlstadt, N.J.:

Date: 9/10/13

FOR: Permacel

Signature: [signature]

Name (print): J. Michael Prairie, Jr.

Title: Secretary

Address: 5th Floor, Suite 66
300 Frank W. Burr Blvd.
Teaneck, NJ 07666

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): Trisha L. Smith, Esq.

Title: Environmental Counsel to Permacel

Address: Law Office of Trisha L. Smith
303 East 76th Street #3
New York, NY 10021

Ph. Number: 212-799-0657

Email: profsmith08@email.com

THE UNDERSIGNED PARTY enters into this Consent Decree in this action captioned United States v. Air Products and Chemicals, Inc., et al., (D.N.J.), regarding the Scientific Chemical Processing Superfund Site, Carlstadt, N.J.:

9/12/13
Date:

FOR: **Pfizer Inc**

Signature: Michael G Mahoney

Name (print): Michael G. Mahoney, Esq.

Title: Vice President and Assistant General Counsel

Address: Pfizer Inc
235 East 42nd Street
New York, NY 10017

Email: mike.g.mahoney@pfizer.com

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): The Corporation Trust Company

Title: N/A

Address: 820 Bear Tavern Road
West Trenton, NJ 08628

Ph. Number: 609-338-1818

Email: N/A

THE UNDERSIGNED PARTY enters into this Consent Decree in this action captioned United States v. Air Products and Chemicals, Inc., et al., (D.N.J.), regarding the Scientific Chemical Processing Superfund Site, Carlstadt, N.J.:

FOR: **Pharmacia LLC (Pharmacia Corporation (f/k/a Monsanto Company) converted to a limited liability company)**

9/11/2013
Date:

Signature: MMS

Name (print): L. Glen Kurowski

Title: Director, Environmental Affairs, Monsanto Company, Attorney-in-fact for Pharmacia LLC

Address: 800 North Lindbergh Boulevard, Mailcode LC1B
Saint Louis, MO 63167

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): Mary M. Shaffer

Title: Assistant General Counsel

Address: Monsanto Company
St. Louis, MO 63167

Ph. Number: 314-694-3883

Email: molly.m.shaffer@monsanto.com

THE UNDERSIGNED PARTY enters into this Consent Decree in this action captioned United States v. Air Products and Chemicals, Inc., et al., (D.N.J.), regarding the Scientific Chemical Processing Superfund Site, Carlstadt, N.J.:

FOR: **Revlon Consumer Products Corporation for itself and as a successor in interest to Revlon, Inc.**

9/11/13
Date:

Signature: Lauren Goldberg

Name (print): Lauren Goldberg

Title: Executive Vice President and General Counsel

Address: 237 Park Avenue
New York, NY 10017

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): Same as above

Title:

Address:

Ph. Number: 212-527-5180

Email: lauren.goldberg@revlon.com

THE UNDERSIGNED PARTY enters into this Consent Decree in this action captioned United States v. Air Products and Chemicals, Inc., et al., (D.N.J.), regarding the Scientific Chemical Processing Superfund Site, Carlstadt, N.J.:

9/10/13
Date:

FOR: **Rohm and Haas Company**

Signature: Edward F. Tokarski

Name (print): Edward Tokarski

Title: Remediation Leader

Address: c/o The Dow Chemical Company
3100 State Road
Croyden, PA 19021

Ph. Number: 215-785-7244

Email: etokarski@dow.com

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): The Corporation Trust Company

Title: N/A

Address: 820 Bear Tavern Road
West Trenton, NJ 08628

Ph. Number: 609-538-1818

Email:

With a copy to:

Name (print): Audrey C. Friedel

Title: Of counsel, Rohm and Haas Company

Address: c/o The Dow Chemical Company
100 Independence Mall West
Legal Department
Philadelphia, PA 19106-2399

Ph. Number: 215-592-6995

Email: afriedel@dow.com

THE UNDERSIGNED PARTY enters into this Consent Decree in this action captioned United States v. Air Products and Chemicals, Inc., et al., (D.N.J.), regarding the Scientific Chemical Processing Superfund Site, Carlstadt, N.J.:

FOR: **Rohm and Haas Company (for Bee Chemical Company Share)**

9/10/13
Date:

Signature: Edward F. Tokarski

Name (print): Edward Tokarski

Title: Remediation Leader

Address: c/o The Dow Chemical Company
3100 State Road
Croyden, PA 19021

Ph. Number: 215-785-7244

Email: etokarski@dow.com

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): The Corporation Trust Company

Address: 820 Bear Tavern Road
West Trenton, NJ 08628

Ph. Number: 609-538-1818

Email: N/A

With a copy to:

Name (print): Audrey C. Friedel, Esq.

Title: Of counsel, Rohm and Haas Company

Address: c/o The Dow Chemical Company
100 Independence Mall West
Legal Department
Philadelphia, PA 19106-2399

Ph. Number: 215-592-6995

Email: afriedel@dow.com

THE UNDERSIGNED PARTY enters into this Consent Decree in this action captioned United States v. Air Products and Chemicals, Inc., et al., (D.N.J.), regarding the Scientific Chemical Processing Superfund Site, Carlstadt, N.J.:

FOR: **Seagrave Coatings Corp. (NJ) formerly Chemray Coatings Corp.**

9/17/13
Date:

Signature: _____

Name (print): Peter Tepperman

Title: President & Owner

Address: Seagrave Coatings Corp.
209 N. Michigan Ave.
Kenilworth, NJ 07033

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): Same as above

Title:

Address:

Ph. Number: 201-933-1000

Email: hptepperman@seagravecoatings.com

THE UNDERSIGNED PARTY enters into this Consent Decree in this action captioned United States v. Air Products and Chemicals, Inc., et al., (D.N.J.), regarding the Scientific Chemical Processing Superfund Site, Carlstadt, N.J.:

FOR: **SI Group, Inc. (formerly known as Schenectady International, Inc., and Schenectady Chemicals, Inc.)**

September 11, 2013
Date:

Signature: Richard P. Barlow

Name (print): Richard P. Barlow

Title: CFO and Senior Vice President

SI Group, Inc.

Address: 2750 Balltown Road

Schenectady, NY 12309

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): Thomas J. Masterson, Esq.

Title: General Counsel

Address: P.O. Box 1046

2750 Balltown Road

Schenectady, NY 12309

Ph. Number: 518-347-4443

Email: Thomas.Masterson@siigroup.com

THE UNDERSIGNED PARTY enters into this Consent Decree in this action captioned United States v. Air Products and Chemicals, Inc., et al., (D.N.J.), regarding the Scientific Chemical Processing Superfund Site, Carlstadt, N.J.:

FOR: **Siegfried (USA), Inc. (Successor in interest to Ganes Chemicals, Inc.)**

9/11/2013
Date:

Signature: Cecilia Guerrette

Name (print): Cecilia Guerrette

Title: Director of Finance

Address: Siegfried (USA), Inc.
33 Industrial Park Road
Pennsville, NJ 08070

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): Stephen E. Hughes

Title: Counsel for Siegfried (USA), Inc.

Address: Bonner Kiernan Trebach & Crociata, LLP
200 Portland Street, Suite 400
Boston, MA 02114

Ph. Number: 617-426-3900

Email: shughes@bonnerkiernan.com

THE UNDERSIGNED PARTY enters into this Consent Decree in this action captioned United States v. Air Products and Chemicals, Inc., et al., (D.N.J.), regarding the Scientific Chemical Processing Superfund Site, Carlstadt, N.J.:

Date: 9/10/13

FOR: **Simon Wrecking Company, Inc., Simon Resources, Inc. and Mid State Trading Co.**

Signature: _____

Name (print): Sharon Oras Morgan, Esq.

Title: Counsel for Simon Wrecking Company, Inc., Simon Resources, Inc. and Mid State Trading Co.

Address: Fox Rothschild, LLP
Citizens Bank Center
919 North Market Street, Suite 1300
Wilmington, DE 19899-2323

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): Same as above.

Title: _____

Address: _____

Ph. Number: 302-622-4246

Email: SMorgan@foxrothschild.com

THE UNDERSIGNED PARTY enters into this Consent Decree in this action captioned United States v. Air Products and Chemicals, Inc., et al., (D.N.J.), regarding the Scientific Chemical Processing Superfund Site, Carlstadt, N.J.:

Sept. 10, 2013
Date:

FOR: **The Dow Chemical Company**

Signature:

Name (print): Robert Casselberry

Title: Authorized Representative

Address: The Dow Chemical Company
3100 State Road
Croydon, PA 19021

Email: rcasselberry@dow.com

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): The Corporation Trust Company

Title: 820 Bear Tavern Road

Address: West Trenton, NJ 08628

Ph. Number: 609-538-1818

Email: N/A

THE UNDERSIGNED PARTY enters into this Consent Decree in this action captioned United States v. Air Products and Chemicals, Inc., et al., (D.N.J.), regarding the Scientific Chemical Processing Superfund Site, Carlstadt, N.J.:

9/12/13
Date:

FOR: **The Warner Lambert Co., LLC a wholly owned subsidiary of Pfizer Inc.**

Signature: Michael G Mahoney

Name (print): Michael G. Mahoney, Esq.

Title: Vice President and Assistant General Counsel

Address: Pfizer Inc.
235 East 42nd Street
New York, NY 10017
mike.g.mahoney@pfizer.com

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): The Corporation Trust Company

Title: N/A

Address: 820 Bear Tavern Road
West Trenton, NJ 08628

Ph. Number: 609-338-1818

Email: N/A

THE UNDERSIGNED PARTY enters into this Consent Decree in this action captioned United States v. Air Products and Chemicals, Inc., et al., (D.N.J.), regarding the Scientific Chemical Processing Superfund Site, Carlstadt, N.J.:

9/9/2013
Date:

FOR: 3M Company

Signature: R.A. Paschke

Name (print): Robert A. Paschke

Title: Manager, Corporate Environmental Programs

Address: 3M Company
3M EHS
3M Center, 224-05-W-17
St. Paul, MN 55144-1000

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): David P. Schneider, Esq.

Title: Counsel for 3M Company

Address: Bressler, Amery & Ross, P.C.
325 Columbia Turnpike
Florham Park, NJ 07932

Ph. Number: 973-966-9671

Email: dschneider@bressler.com

THE UNDERSIGNED PARTY enters into this Consent Decree in this action captioned United States v. Air Products and Chemicals, Inc., et al., (D.N.J.), regarding the Scientific Chemical Processing Superfund Site, Carlstadt, N.J.:

9/12/2013
Date

FOR: Trane U.S., Inc. (f/k/a American Standard, Inc.)

Signature: William R Schikora

Name (print): William Schikora, Esq.

Title: Outside Counsel

Address: 125 Walnut Street
Northville, MI 48167

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): Same as Above

Title:

Address:

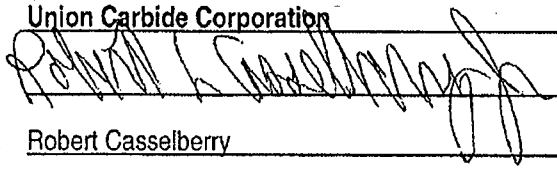
Ph. Number: 248-974-4376

Email: wrschikora@gmail.com

THE UNDERSIGNED PARTY enters into this Consent Decree in this action captioned United States v. Air Products and Chemicals, Inc., et al., (D.N.J.), regarding the Scientific Chemical Processing Superfund Site, Carlstadt, N.J.:

Sept. 10, 2013
Date:

FOR: **Union Carbide Corporation**

Signature: 

Name (print): Robert Casselberry

Title: Authorized Representative

Address: Union Carbide Corporation
3100 State Road
Croydon, PA 19021

Email: rcasselberry@dow.com

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): The Corporation Trust Company

Title: 820 Bear Tavern Road

Address: West Trenton, NJ 08628

Ph. Number: 609-538-1818

Email: N/A

THE UNDERSIGNED PARTY enters into this Consent Decree in this action captioned United States v. Air Products and Chemicals, Inc., et al., (D.N.J.), regarding the Scientific Chemical Processing Superfund Site, Carlstadt, N.J.:

Date: 9/12/13

FOR: United Technologies Corporation on behalf of Inmont Corporation

Signature: [signature]

Name (print): Richard H. Bennett, Jr.

Title: Vice President, Environment, Health & Safety

Address: United Technologies Corporation
9 Farm Springs, 1st Floor
Farmington, CT 06032

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): Brian C. Freeman, Esq.

Title: Counsel for United Technologies Corporation

Address: Robinson & Cole LLP
280 Trumbull Street
Hartford, CT 06103

Ph. Number: 860-275-8310

Email: bfreeman@rc.com

THE UNDERSIGNED PARTY enters into this Consent Decree in this action captioned United States v. Air Products and Chemicals, Inc., et al., (D.N.J.), regarding the Scientific Chemical Processing Superfund Site, Carlstadt, N.J.:

FOR: **Veolia ES Technical Solutions, L.L.C., as successor in interest to Marisol, Incorporated.**

9/11/13
Date:

Signature: Paul McShane

Name (print): Paul McShane

Title: Vice President.

Address: 125 South 84th Street, Suite 175
Milwaukee, Wisconsin 53214

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): The Corporation Trust Co.

Title: Registered Agent for Veolia ES Technical Solutions, LLC

Address: 820 Bear Tavern Road
WestTrenton, NJ 08628

Ph. Number: 609-538-1818

Email:

APPENDIX A

DECLARATION STATEMENT

SITE NAME AND LOCATION

Scientific Chemical Processing (EPA ID# NJD070565403), Borough of Carlstadt, Bergen County, New Jersey, Operable Unit 3

STATEMENT OF BASIS AND PURPOSE

This decision document presents the Selected Remedy for off-property and deep groundwater contamination at the Scientific Chemical Processing Site located in the Borough of Carlstadt, Bergen County, New Jersey. The Selected Remedy was chosen in accordance with the Comprehensive Environmental Response, Compensation and Liability Act, as amended, and to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan. This decision is based on the Administrative Record file for the Site.

The State of New Jersey concurs with the Selected Remedy.

ASSESSMENT OF THE SITE

The response action selected in this Record of Decision (ROD) is necessary to protect public health or welfare or the environment from actual or threatened release of hazardous substances from the Site into the environment.

DESCRIPTION OF THE SELECTED REMEDY

The response action described in this document addresses off-property and deep groundwater contamination at the Scientific Chemical Processing Site. It represents the third and final remedial phase, or operable unit, for the Site. A ROD issued for the first operable unit (OU1) in September 1990 selected an interim remedy to address contaminated on-property soil and shallow groundwater at the Site. A ROD for the second operable unit (OU2) was issued in August 2002 and selected a final remedy for the on-property soil and shallow groundwater. This ROD for the third operable unit (OU3) addresses off-property and deep groundwater contamination.

The major components of the selected remedy are:

- $ Treatment of contaminated off-property and deep groundwater using in-situ treatment technologies, through the injection of a substance or substances into the groundwater to cause or enhance the breakdown of the contaminants of concern to less toxic forms;
- $ Monitored natural attenuation both during and after active treatment; and
- $ Institutional controls to assure that the remedy remains protective until cleanup goals are achieved.

DECLARATION OF STATUTORY DETERMINATIONS

Part 1: Statutory Requirements

The Selected Remedy is protective of human health and the environment, complies with federal and state requirements that are applicable or relevant and appropriate to the remedial action, is cost-effective, and utilizes permanent solutions and alternative treatment or resource recovery technologies to the maximum extent practicable.

Part 2: Statutory Preference for Treatment

The Selected Remedy satisfies the statutory preference for treatment as a principal element of the remedy.

Part 3: Five-Year Review Requirements

EPA expects that it will take more than five years for the remedy to achieve the remedial action objectives and cleanup goals for the groundwater. In addition, the OU2 remedy resulted in hazardous substances, pollutants or contaminants remaining on-site above levels that allow for unlimited use and unrestricted exposure. As such, statutory five-year reviews are already being conducted to ensure the remedies for the Site are protective of human health and the environment. The next review is scheduled for completion in December 2012.

ROD DATA CERTIFICATION CHECKLIST

The following information is included in the Decision Summary section of this Record of Decision. Additional information can be found in the Administrative Record file for the Site.

- $ Chemicals of concern and their respective concentrations may be found in the ASummary of Site Characteristics@ section.
- $ Baseline risk represented by the chemicals of concern may be found in the ASummary of Site Risks@ section.
- $ A discussion of source materials constituting principal threats may be found in the APrincipal Threat Waste@ section.
- $ Current and reasonably anticipated future land use assumptions are discussed in the ACurrent and Potential Future Site and Resource Uses@ section.
- $ Estimated capital, annual operation and maintenance, and total present worth costs are discussed in the ADescription of Remedial Alternatives@ section.

- Key factors that led to selecting the remedy (i.e., how the Selected Remedy provides the best balance of tradeoffs with respect to the balancing and modifying criteria, emphasizing criteria key to the decision) may be found in the "Comparative Analysis of Alternatives" and "Statutory Determinations" sections.

Walter E. Mugdan, Director
Emergency & Remedial Response Division
Environmental Protection Agency, Region 2

Sept. 27, 2012
Date

DECISION SUMMARY

Operable Unit Three

Scientific Chemical Processing Site

Borough of Carlstadt, Bergen County, New Jersey

United States Environmental Protection Agency

Region II

September 2012

TABLE OF CONTENTS

SITE NAME LOCATION AND DESCRIPTION

The six-acre Scientific Chemical Processing (SCP) Site is located at 216 Paterson Plank Road in Carlstadt, New Jersey. The Site is a corner property, bounded by Paterson Plank Road on the south, Gotham Parkway on the west, Peach Island Creek on the north and an industrial facility on the east (Figure 1). The land use in the vicinity of the Site is classified as light industrial by the Borough of Carlstadt. The establishments in the immediate vicinity of the Site include a bank, horse stables, warehouses, freight carriers, and service sector industries. There is a residential area located approximately 1.2 miles northwest of the Site.

SITE HISTORY AND ENFORCEMENT ACTIVITIES

Early Operations

The land on which the former SCP property is located was purchased in 1941 by Patrick Marrone, who used the land for solvent refining and solvent recovery. Mr. Marrone eventually sold the land to a predecessor of Inmar Associates, Inc. Aerial photographs from the 1950s, 1960s and 1970s indicate that drummed materials were stored on the property. On October 31, 1970, the Scientific Chemical Processing Company leased the property from Inmar Associates. SCP used the property for processing industrial wastes from 1971 until the company was shut down by court order in 1980.

While in operation, SCP received liquid byproduct streams from chemical and industrial manufacturing firms, and then processed the materials to reclaim marketable products which were sold to the originating companies. In addition, liquid hydrocarbons were processed to some extent, and then blended with fuel oil. The mixtures were typically sold back to the originating companies or to cement and aggregate kilns as fuel. SCP also received other wastes, including paint sludge, acids and other unknown chemical wastes.

Site Discovery, State and Federal Response Actions

In 1983, the Site was placed on the National Priorities List. Between 1983 and 1985, NJDEP required the property owner to remove approximately 250,000 gallons of wastes stored in tanks which had been abandoned at the Site.

In May 1985, EPA assumed the lead role in the response actions, and issued notice letters to more than 140 Potentially Responsible Parties (PRPs). EPA offered the PRPs an opportunity to perform a Remedial Investigation and Feasibility Study (RI/FS) for the Site. The purpose of an RI/FS is to determine the nature and extent of contamination at a site, and then to develop remedial alternatives to address the contamination. In September 1985, EPA issued an Administrative Order on Consent to 108 PRPs who had agreed to conduct the RI/FS. Subsequently, in October 1985, EPA issued a Unilateral Order to 31 PRPs who failed to sign the Consent Order. The Unilateral Order required the 31 PRPs to cooperate with the 108 consenting PRPs on the RI/FS. In the fall of 1985, EPA also issued an Administrative Order to Inmar Associates, requiring the company to remove and properly dispose of the contents of five tanks containing wastes

contaminated with Polychlorinated Biphenyls (PCBs) and numerous other hazardous substances. Inmar removed four of the five tanks remaining on the property in 1986. The fifth tank was not removed at the time because it contained high levels of PCBs and other contaminants, and disposal facilities capable of handling those wastes were not available. The fifth tank and its contents were subsequently removed by the PRPs in February 1998 and disposed of at an EPA-approved facility.

The PRPs initiated the RI/FS in April 1987, and it was completed in March 1990. The RI focused on the most heavily contaminated zone at the Site, which included the contaminated soil, sludge, and shallow groundwater within the SCP property (hereinafter, this zone will be referred to as the "Fill Area"). The RI also included sampling of deeper groundwater areas, both on and off the SCP property, and of surface water and sediment from Peach Island Creek. The investigation found that contamination from the Fill Area had impacted these additional areas.

The FS indicated that, although there seemed to be several potential methods or combinations of methods to remedy the Fill Area, there were uncertainties regarding the relative effectiveness of the various technologies. Consequently, EPA made a decision that treatment alternatives needed further assessment. In the meantime, however, measures were needed to contain and prevent exposure to the Fill Area contaminants. As such, an interim remedy for the on-property soil and shallow groundwater was selected in a September 1990 Record of Decision (ROD).

EPA typically addresses sites in separate phases and/or operable units. In developing an overall strategy for the Site, EPA has identified the interim Fill Area remedy as Operable Unit 1 (OU1), the final Fill Area remedy as OU2, and the off-property and deep groundwater remedy, which is the subject of this ROD, as OU3. Contamination in the adjacent Peach Island Creek will be addressed as part of another Superfund site, Berry's Creek. Peach Island Creek is a tributary to Berry's Creek.

Interim Remedy: Soil and Shallow Groundwater on Property (OU1)

The goals of the interim remedy selected for OU1 were to prevent exposure to contaminated soil and sludge in the Fill Area and to prevent the contaminated groundwater within the Fill Area from migrating off-property. The interim remedy was constructed from August 1991 through June 1992 by the PRPs for the Site, with EPA oversight, pursuant to a Unilateral Administrative Order, dated September 28, 1990, and consisted of the following:

- $ A vertical containment wall comprised of a soil-bentonite slurry with an integral high density polyethylene (HDPE) membrane surrounding the Fill Area and keyed into an underground clay layer;

- $ A sheet pile retaining wall along Peach Island Creek;

- $ An HDPE horizontal infiltration barrier covering the property;

- $ An extraction system for shallow groundwater within the containment area with discharge to an above-ground storage tank for off-site disposal;

$ A chain link fence around the property to restrict access; and

$ Regularly scheduled groundwater sampling, plus monitoring of the interim remedy to assure it remained effective until a final remedy was selected.

The interim remedy has effectively mitigated the risks from direct contact with Fill Area contamination and the spread of Fill Area contamination to deeper groundwater and Peach Island Creek since its implementation in 1992.

Final Remedy: Soil and Shallow Groundwater on Property (OU2)

While implementing the OU1 remedy, EPA continued to oversee additional RI/FS work which would provide information to select a final remedy for the Fill Area, as well as a remedy for the off-property and deep groundwater. A ROD selecting the Final Remedy for the Fill Area (OU2) was signed in August 2002. The major elements of the selected remedy included:

- Treatment of a Hot Spot area of contamination to reduce concentrations of volatile organic compounds, followed by soil stabilization of the area using cement and lime. If the treatment did not prove effective, the ROD specified that excavation of the Hot Spot area, with off-site disposal, would occur;

- Installation of a 2-foot thick "double containment" cover system over the entire Fill Area;

- Improvement of the existing, interim groundwater recovery system; and

- Improvement of the existing sheet pile wall along Peach Island Creek.

The OU2 remedy was implemented by the PRPs, with EPA oversight, pursuant to a Consent Decree entered in September 2004. Design of the remedy was completed in June 2007 and construction of the remedy was initiated in April 2008. Efforts to stabilize the Hot Spot area of contamination were not successful. As such, sludge and soil from the area was excavated and disposed of at an EPA-approved off-site disposal facility.

Implementation of the OU2 remedy was completed in October 2011. The groundwater recovery system is operating and regular maintenance is being conducted by the PRPs.

Off-Property and Deep Groundwater (OU3)

OU3 includes groundwater located outside of the boundaries of the former SCP property, as well as groundwater beneath the property, but deeper than the limits of the OU2 remedy (i.e., below the shallow groundwater). Investigation of OU3 groundwater has been ongoing since the initiation of the RI for the Site in 1987. An Interim Data Report was submitted by the PRPs in 1997, and an Off-Property Groundwater Investigation Report was submitted in May 2003.

After reviewing the May 2003 report, EPA determined that additional investigation was needed to further define the nature and extent of groundwater contamination in the till and bedrock aquifers. The scope of the additional investigation was agreed to at a meeting with EPA in November 2006, and the associated fieldwork was conducted between March and July 2007. The Final Off-Property Groundwater Investigation Report for Operable Unit 3 (the Final RI for OU3) was submitted by the PRPs in July 2009.

In June 2008, the PRPs submitted a remedial action objectives and remedial alternatives (RAO/RA) report, identifying a preliminary list of remedial technologies for OU3. The RAO/RA report also proposed that bench and, possibly, pilot-scale studies be conducted to test the efficacy of certain remedial technologies for use at this Site.

Additional groundwater investigations were performed in advance of the bench and pilot-scale treatability studies that were conducted to support the OU3 FS. This additional investigation work was conducted in December 2009 and January 2010 in accordance with an April 2009 work plan for additional groundwater delineation submitted by the PRPs. The results were reported in an OU3 FS Phase 1 Treatability Studies report dated September 2010, which proposed further delineation activities and provided a work plan for an enhanced anaerobic bioremediation pilot test that is ongoing at the Site.

The OU3 RI/FS was completed in July 2012. The results of the OU3 RI are summarized below, and form the basis for the development of the FS report. Both documents, as well as the OU3 Human Health Risk Assessment, can be found in the Administrative Record for the Site.

HIGHLIGHTS OF COMMUNITY PARTICIPATION

The RI/FS Reports and the Proposed Plan for OU3 were released to the public for comment on August 2, 2012. These documents were made available to the public in the administrative record file maintained at the William E. Dermody Public Library, 420 Hackensack Street, Carlstadt, New Jersey and at the EPA Records Center, Region II, 290 Broadway, New York, New York. The notice of availability for these documents was published in the South Bergenite on August 2, 2012. A public comment period was held from August 3, 2012 to September 4, 2012.

In addition, on August 9, 2012, a public meeting was conducted at the Carlstadt Borough Hall, 500 Madison Street, Carlstadt, New Jersey, to discuss the findings of the RI/FS and to present EPA's Proposed Plan to local officials and the community. At this meeting, EPA representatives answered questions about the groundwater contamination and remedial alternatives.

Comments which were received by EPA at the public meeting and during the public comment period are summarized and addressed in the Responsiveness Summary (see Appendix V).

SCOPE AND ROLE OF RESPONSE ACTION

As stated previously, EPA is addressing this Site in three operable units, two of which have already been implemented. OU1 provided an interim infiltration barrier, slurry wall, groundwater

collection system, and off-site disposal of contaminated groundwater. OU2 improved upon and made permanent the OU1 remedy. It constituted the final remedy for the Fill Area of the Site. OU3, the final operable unit and the subject of this ROD, addresses contaminated groundwater in the deeper aquifers where contamination extends off-property and below the OU2 containment area.

SUMMARY OF SITE CHARACTERISTICS

The stratigraphy at the Site consists of the following layers, in descending order with depth (see Figure 2):

- Man-made fill (3 to 10 feet thick)
- Marine and marsh "meadow mat" (0 to 4 feet thick)
- Glaciolacustrine varved clay unit, including an upper stiff bedded unit and a lower soft plastic unit (0 to 20 feet thick)
- Glacial till, including a soft upper unit (0 to 17 feet thick) and a very hard lower lodgement till (0 to 30 feet thick)
- Passaic Formation bedrock consisting of siltstones and mudstones with occasional interbeds of sandstones.

The geologic layers that are most relevant to OU3 include the glaciolacustrine varved clay unit, which serves as a confining layer, and the underlying glacial till and bedrock aquifers. The till and bedrock aquifers are designated as Class IIA groundwater by the State of New Jersey, which means they are potential sources of drinking water. However, no wells in the affected area are used for potable water purposes.

Groundwater in the vicinity of the Site generally flows to the north from the property. However, the flow direction and water levels are significantly influenced by the presence of several nearby extraction wells used for non-residential, non-potable purposes. These wells operate during the week and then sit idle during the weekend. Consequently, the groundwater flow direction shifts during the weekend, and tends toward the northwest or even the south when some or all of the extraction wells are not operating.

Sampling Results

The results of the RI are summarized in a final report dated July 2009. Additional sampling conducted since that time has been incorporated into the FS for OU3. The primary contaminants of concern in groundwater at the Site include Volatile Organic Compounds (VOCs), predominantly tetrachloroethene (PCE), trichloroethene (TCE), cis-1,2-dichloroethene (DCE), and vinyl chloride, localized areas of aromatic hydrocarbons, including benzene, and 1,4-dioxane.

There are two distinct areas of contamination in the OU3 groundwater, which are described separately below. The two areas can be seen on Figure 3, and a summary of the sampling results from the till and bedrock aquifers can be found on Figures 4 and 5.

Northern Area Contamination

The primary contaminants of concern in the northern area of contamination are the VOCs mentioned previously. Concentrations decrease substantially with increasing horizontal and vertical distance from the former SCP property. For example, the highest concentrations of total VOCs in the bedrock aquifer, approximately 3,000 parts per billion (ppb), were found in Monitoring Well -13R (MW-13R), which is located adjacent to the northwest corner of the former SCP property. Total VOC concentrations decrease to trace levels (i.e., less than 1 ppb) in the bedrock aquifer by 1,000 feet away horizontally. Concentrations also decline vertically, with only trace total VOC concentrations detected in MW-23R, located near, but deeper than, MW-13R.

Similarly, the highest concentration of total VOCs detected in the till aquifer was approximately 5,500 ppb in MW-5D, which is located in the northwest corner of the property, and draws water from beneath the OU2 containment remedy. Total VOC concentrations in the till aquifer decline to 718 ppb in MW-20D, located approximately 500 feet north of the property, and to 5 ppb in MW-26D, located approximately 950 feet northeast of the property. Total VOC concentrations also decline to 51 ppb in MW-25D, approximately 1,000 feet north of the property.

Southern Area Contamination

The primary contaminant of concern that defines the contamination to the south of the property is 1,4-dioxane, though other contaminants, including benzene and 1,1-dichloroethane, are also present at elevated concentrations. 1,4-dioxane has been detected in groundwater in the southern area at concentrations ranging from 5 ppb to 6,300 ppb. The highest concentrations were observed in the soft till, and were an order of magnitude higher than in groundwater samples collected in the deeper, lodgement till. 1,4-dioxane has not been found above concentrations of concern in the bedrock aquifer.

Summary of Groundwater Concentration Trends

Recent concentrations of contaminants in off-property groundwater are generally below historic highs. The containment measures implemented as part of the OU1 and OU2 remedies are likely partially responsible for the decline in concentrations over time. The OU1 and OU2 remedies effectively mitigated the movement of contamination from the Fill Area to the deeper and off-property groundwater. However, natural attenuation processes are also contributing to the continued decline in concentrations of OU3 groundwater contamination over time.

Natural attenuation refers to processes that reduce the mass, toxicity, mobility, volume, and/or concentration of chemicals through natural processes, such as biodegradation, dispersion, dilution, sorption, volatilization, and/or chemical or biological stabilization, transformation, or destruction of contaminants. Appendix A of the 2012 FS report for OU3 contains a formal natural attenuation evaluation. The evaluation documents that natural attenuation processes are occurring in the deep groundwater at the Site, and that the primary in-situ process contributing to the ongoing natural attenuation is biodegradation (i.e., the natural breakdown of chemicals through biological processes).

Multiple lines of evidence exist which show that natural attenuation processes are occurring at the Site. These include:

- Declining concentrations of VOCs at some of the wells;
- The presence of ethene, ethane and other daughter products of the chlorinated ethene and chlorinated ethane degradation sequences, which provides evidence that dechlorination is occurring;
- Geochemical data which suggests that groundwater conditions are conducive to anaerobic biodegradation of site-related contaminants; and
- Use of EPA's monitored natural attenuation screening criteria "scorecard" found that the majority of wells in the till and bedrock aquifers show evidence of anaerobic biodegradation.

The decline in concentrations over time can be seen by looking at the data in Figures 4 and 5. Of the site-related contaminants, only 1,4-dioxane does not naturally biodegrade.

CURRENT AND POTENTIAL FUTURE SITE AND RESOURCE USES

Land Use:

The land use at the Site and in the vicinity of the Site is classified as light industrial by the Borough of Carlstadt. The establishments in the immediate vicinity of the Site include a bank, horse stables, warehouses, freight carriers, and service sector industries. There is a residential area located approximately 1.2 miles northwest of the Site.

Groundwater Uses:

The natural water table is found in the shallow aquifer at a depth of approximately two feet below the land surface. Beneath the shallow aquifer is a clay layer, which is underlain by the till aquifer. Underneath the till aquifer is the bedrock aquifer.

Both the till and bedrock aquifers are designated as Class IIA groundwater by the State of New Jersey, which means they are potential sources of drinking water. However, no wells in the affected area are currently used for potable water purposes. While there are no current completed exposure pathways to OU3 groundwater, future exposure pathways are associated with potential groundwater extraction and use via ingestion, inhalation and dermal contact routes.

SUMMARY OF SITE RISKS

As part of the RI/FS, a baseline risk assessment was conducted to estimate the current and future effects of contaminants on human health and the environment. A baseline risk assessment is an analysis of the potential adverse human health and ecological effects of releases from hazardous substances from a Site in the absence of any actions or controls to mitigate such releases, under current and future land, ground water, surface water, and sediment uses. The baseline risk assessment generally includes a human health risk assessment and an ecological risk assessment. It

provides the basis for taking action and identifies the contaminants and exposure pathways that need to be addressed by the remedial action.

This section of the ROD summarizes the results of the baseline human health risk assessment (BHHRA) that was conducted for the Site. An ecological risk assessment was determined to be unnecessary for OU3. The OU2 remedy specified that ecological risks would be addressed as part of the OU3 remedy. At that time, Peach Island Creek was to be addressed as part of the Site. However, contamination in the creek, and any associated ecological risks, will now be addressed as part of the Berry's Creek Superfund site.

Human Health Risk Assessment

A BHHRA is an analysis of the potential adverse human health effects caused by hazardous substance exposure in the absence of any actions to control or mitigate exposure under current and future land uses. The BHHRA for OU3 considered exposure to Chemicals of Potential Concern in the bedrock and till groundwater aquifers assuming no remediation and no institutional controls.

A four-step human health risk assessment process was used for assessing site-related cancer risks and non-cancer health hazards. The four-step process is comprised of:

- *Hazard Identification* – identifies the contaminants of concern at a site based on several factors such as toxicity, frequency of occurrence, and concentration;

- *Exposure Assessment* – estimates the magnitude of actual and/or potential human exposures, the frequency and duration of these exposures, and the pathways by which humans are potentially exposed (i.e., ingesting contaminated groundwater);

- *Toxicity Assessment* – determines the types of adverse health effects associated with chemical exposures, and the relationship between magnitude of exposure (dose) and severity of adverse effects (response); and

- *Risk Characterization* – summarizes and combines outputs of the exposure and toxicity assessments to provide a quantitative assessment of site-related risks. During this step, contaminants with concentrations that exceed federal Superfund guidelines for acceptable exposure are identified. These guidelines are 10^{-4} to 10^{-6}, or one-in-ten-thousand to one-in-a-million excess occurrences, for cancer, and a Hazard Index (HI) of greater than 1.0 for non-cancer health hazards. Contaminants with concentrations that exceed these guidelines are then considered chemicals of concern (COCs) for the site and are typically those that will require remediation. The uncertainties associated with the risk calculations are also evaluated under this step.

Each of these steps, as applied to OU3 of this Site, is described below.

Hazard Identification

All OU-3 groundwater data collected since December of 2006 was considered in the screening of COCs. Potential COCs were screened against residential tap water concentrations associated with a risk level of 1×10^{-6} or a chemical specific Hazard Quotient (HQ) = 0.1. All known human carcinogens were selected as COCs regardless of risk level. The BHHRA identified a wide range of volatile organic compounds, semi-volatile organic compounds and metals as COCs. The main risk driver COCs were found to be 1,4-dioxane, DCE, PCE, and TCE.

Exposure Assessment

Table 1 provides the Site Conceptual Site Model for exposures to OU3 groundwater. As has been noted, no wells in the affected area are currently used for potable water purposes, and the land use at the Site and in its vicinity is currently zoned as light industrial. Therefore, the BHHRA focused on future risks. The following potential future use scenarios were evaluated:

- Future Adult/Child Residents: ingestion of, dermal contact with, and inhalation of vapors from OU3 groundwater.

- Industrial Workers: ingestion of and dermal contact with OU3 groundwater; qualitative evaluation of inhalation of vapors from OU3 groundwater.

Exposure Point Concentrations (EPCs) in groundwater were estimated using either the maximum detected concentration of a contaminant, or determined statistically by calculating the upper confidence limit (UCL) of the average concentration. Chronic daily intakes were calculated based on the reasonable maximum exposure (RME), which is the highest exposure reasonably anticipated to occur at the Site. The RME is intended to represent a conservative exposure scenario that is still within the range of possible exposures. Central tendency exposure (CTE) assumptions, which represent typical, average exposures, were also developed. Table 2 presents the OU3 COC EPCs that were used, the range of detected concentrations for the COCs, the frequency of detection, and the statistical method used to determine the EPC. A complete summary of all exposure scenarios can be found in the BHHRA.

Toxicity Assessment

Under current EPA guidelines, the likelihood of carcinogenic risks and non-cancer hazards due to exposure to site-related chemicals are considered separately. Consistent with current EPA policy, it was assumed that the toxic effects of the site-related chemicals would be additive. Thus, cancer risks and non-cancer hazards associated with exposures to individual COCs were summed to indicate the potential cancer risks and non-cancer hazards associated with mixtures, respectively.

Toxicity data for the human health risk assessment were provided by the Integrated Risk Information System (IRIS) database, the Provisional Peer Reviewed Toxicity Values, or another source that is identified as an appropriate reference for toxicity values consistent with EPA's directive on toxicity values. This information is presented in Tables 3a and 3b (non-cancer toxicity

data summary) and Tables 4a and 4b (cancer toxicity data summary). Additional toxicity information for all COPCs is presented in the BHHRA.

Risk Characterization

Quantitative estimates of carcinogenic risks and non-carcinogenic hazards were calculated as part of the risk characterization. The risk characterization evaluates potential health risks based on estimated exposure intakes and toxicity values. For carcinogens, risks are estimated as the incremental probability of an individual developing cancer over a lifetime as a result of exposure to a potential carcinogen. For non-carcinogens hazards are calculated by comparing an exposure level over a specified time period (e.g., lifetime) with an RfD derived for a similar exposure period.

To assess the overall non-carcinogenic effects posed by more than one contaminant, the EPA has developed the Hazard Quotient (HQ) and Hazard Index (HI). The HQ is the ratio of the chronic daily intake of a COPC to the reference dose for the chemical. The reference dose is an estimate of a daily exposure level for the human population, including sensitive sub-populations, that is thought to be safe over a lifetime of exposure. The HQs are summed for all COPCs within an exposure pathway (e.g., ingestion of soil) and across pathways to determine the HI. When the HI exceeds 1, there may be a concern for potential non-carcinogenic health effects if the COPCs in question are believed to cause similar toxic effects.

For carcinogens, risks are generally expressed as the incremental probability of an individual developing cancer over a lifetime as a result of exposure to a potential carcinogen. The excess lifetime cancer risk was determined for each COPC by multiplying the COPC-specific exposure dose by the cancer slope factor for oral or dermal exposures. The resulting cancer risk estimates are expressed in scientific notation as a probability (e.g., 1×10^{-6}). The risks of individual COPCs are summed for each pathway to develop a total risk estimate. An excess lifetime cancer risk of 1×10^{-4} indicates that one additional incidence of cancer may occur in a population of 10,000 people who are exposed under the conditions identified in the assessment. The range of acceptable risk is 1×10^{-4} to 1×10^{-6} of an individual developing cancer over a 70-year lifetime from exposure to the COPC(s) under specific exposure assumptions. Therefore, sites with carcinogenic risk below the risk range for a reasonable maximum exposure do not generally require cleanup based upon carcinogenic risk under the NCP.

A summary of the carcinogenic risks and non-cancer health hazards associated with the contaminants for each exposure pathway is contained in Tables 5a through 5c.

Summary of Risks to Future Residents

The carcinogenic risk calculated for future adult residents under RME conditions was 3×10^{-3} (three in 1,000), which exceeds the acceptable risk range of 10^{-4} (one in 10,000) to 10^{-6} (one in 1,000,000). The risk is due primarily to ingestion of 1,4-dioxane (77%) and TCE (13%) in the groundwater. The carcinogenic risk calculated for future child residents under RME conditions was 2×10^{-3} (2 in 1,000), which is due primarily to the ingestion of 1,4-dioxane (45%) and TCE

(41%) in the groundwater. The total estimated future child cancer risk under CTE conditions was calculated to be $1x10^{-3}$ (one in 1,000), which still exceeds the risk range.

The non-cancer Hazard Index (HI) calculated for future adult residents was 54 under RME conditions and 25 under CTE conditions. Both of these exceed the goal of protection of an HI of less than 1. The primary COPCs in groundwater contributing to the total HI are 1,4-dioxane, TCE and DCE.

For future child residents, the total HI was calculated to be 125 under RME conditions and 63 under CTE conditions, due primarily to ingestion of 1,4-dioxane, DCE, TCE and PCE in groundwater. Again, the overall HI is greater than the goal of protection of an HI of less than 1 for both the RME and CTE exposures.

Carcinogenic risks associated with dermal exposure to OU3 groundwater were found to be within the acceptable risk range, but the HI was found to be greater than 1 for dermal exposure to TCE in the groundwater. An evaluation of cancer risks and non-cancer hazards associated with showering were found to be below the cancer risk range and an HI of 1 for potential future residents.

Summary of Risks to Industrial Workers

Under future exposure conditions, the sum of all RME cancer risks for the adult industrial/ commercial worker was calculated to be $9x10^{-4}$ (9 in 10,000), which exceeds the acceptable risk range. Estimated risks are primarily driven by ingestion of 1,4-dioxane (78%) and TCE (13%) in groundwater. The total estimated cancer risk under CTE conditions was calculated to be $4x10^{-4}$ (4 in 10,000), which is within the upper bounds of the acceptable risk range.

The total estimated non-cancer HI for future industrial/ commercial workers was calculated to be 19 under RME conditions and 10 under CTE conditions, due primarily by the ingestion of TCE in groundwater. The overall HI is greater than the goal of protection of an HI of less than 1 under both RME and CTE exposure conditions.

Cancer risks and non-cancer hazards associated with dermal exposure to OU3 groundwater were found to be within the acceptable risk range and below an HI of 1 for this scenario. Since the evaluation of cancer risks and non-cancer hazards associated with showering were found to be below the cancer risk range and an HI of 1 for potential future residents, this pathway was not evaluated qualitatively for the industrial/commercial worker scenario (since any associated risks/ hazards would be less).

Uncertainties

The procedures and inputs used to assess risks in this evaluation, as in all such assessments, are subject to a variety of uncertainties. The main sources of uncertainty in the BHHRA are described below.

Uncertainty in environmental sampling and analysis can arise in part from the potentially uneven distribution of contaminants in the media sampled. The sampling locations may not accurately reflect the range, frequency, and distribution of contaminants at the Site. There are also

uncertainties associated with the analytical methods and instruments used in the analysis of the samples. These uncertainties are generally likely to have a low impact on the risk assessment.

The selection of COCs can also lend uncertainty to the risk assessment, but the selection process is generally conservative, so it is unlikely that chemicals that should be COCs are overlooked. At this Site, PCE, TCE, DCE and 1,4-dioxane were retained as COCs in groundwater. However, several chemicals were not evaluated in the BHHRA based on a lack of toxicity values. The lack of toxicity values may result in a potential underestimate of cancer risks and non-cancer health hazards.

Uncertainties can also be associated with the selection of exposure points and pathways and the estimation of EPCs. At this Site, the calculation of EPCs is based on the calculation of UCLs. The RME assumptions incorporated in the BHHRA are intended to be conservative and may overestimate risk.

Uncertainties are also associated with the toxicity information used to conduct the risk assessment. The availability and quality of toxicity data affect the ability of experts to derive toxicity criteria and the quality/quantity of the toxicity criteria that are derived. Uncertainties in toxicological data occur in extrapolating both from animals to humans and from high to low doses of exposure, as well as from the difficulties in assessing the toxicity of a mixture of chemicals. These uncertainties are addressed by making conservative assumptions concerning risk and exposure parameters throughout the assessment. As a result, the risk assessment provides upper bound estimates of the risks to populations near the Site and is not likely to underestimate actual risks related to the Site.

More specific information concerning public health risks, including a quantitative evaluation of the degree of risk associated with various exposure pathways, is presented in the BHHRA report.

REMEDIAL ACTION OBJECTIVES

Remedial Action Objectives are specific goals to protect human health and the environment. These objectives are based on available information and standards such as applicable or relevant and appropriate requirements (ARARs).

Based on the human health risk assessment, the primary contaminants of concern in the deep and off-property groundwater are VOCs, aromatic hydrocarbons, and 1,4-dioxane. There are no current completed exposure pathways to OU3 groundwater, but future exposure pathways are associated with potential groundwater extraction and use via ingestion, inhalation and dermal contact routes. The vapor intrusion pathway is not a concern due to the depth of the OU3 groundwater. The relatively clean shallow groundwater (5 to 10 feet below ground surface), as well as the clay layer that is present beneath it, would effectively block the potential migration of volatile contaminants from the deeper groundwater (more than 30 feet below ground surface) to the surface, as is documented in the January 2008 Five-Year Review Report for the Site.

The following remedial action objectives address the human health risks and environmental concerns posed at the Site:

- Prevent exposure to contaminated groundwater above acceptable risk levels;
- Prevent or minimize future migration of contaminants of concern in the groundwater; and
- Restore groundwater quality to the lower of the federal drinking water standards or the New Jersey Groundwater Quality Standards (NJGWQSs).

Table 6 lists the cleanup goals for the contaminants of concern in OU3 groundwater. The cleanup of the Site is based on remediating the contaminated groundwater to within EPA's acceptable cancer risk range for a reasonable maximum exposure if the groundwater were utilized in the future for residential purposes. The cleanup goals also have to be consistent with federal drinking water standards and NJGWQSs. The cleanup goals listed in Table 6 are based on the NJGWQSs, and are consistent with federal and state guidance.

DESCRIPTION OF REMEDIAL ALTERNATIVES

Remedial alternatives for the off-property and deep groundwater are presented below. Potential applicable technologies were initially identified and screened using effectiveness, implementability and cost as criteria, with an emphasis on the effectiveness of the alternative. Those technologies that passed the initial screening were then assembled into three remedial alternatives which were fully evaluated in the FS.

The time frames below for construction do not include the time to design the remedy or to procure necessary contracts.

Alternative 1 – No Action

Regulations governing the Superfund program require that the "no action" alternative be evaluated generally to establish a baseline for comparison with other alternatives. Under this alternative, EPA would take no action at the Site to prevent exposure to the groundwater contamination.

Total Capital Cost	$0
Total Operation and Maintenance	$0
Total Present Worth Cost	$0
Estimated Timeframe	None

Alternative 2 – In-Situ Treatment, Monitored Natural Attenuation, and Institutional Controls

This alternative would treat the contamination in the groundwater directly, through the injection of a substance, or substances, designed to cause or enhance the breakdown of the contaminants of concern to less toxic forms.

As described above, there are two distinct areas of contamination for OU3. A bench-scale test was conducted on the southern portion of the plume and a long-term, pilot-scale test is nearing

completion in the northern portion of the plume. Both tests indicate that in-situ treatment technologies can effectively remediate the contamination that is present in the OU3 groundwater.

Based on the test results, it is anticipated at this time that enhanced anaerobic bioremediation (EAB) would be utilized to treat the contaminants in the northern portion of the plume and that in-situ chemical oxidation (ISCO) would be used on the southern portion. To arrive at the cost estimates provided above, the following assumptions were made in the FS (see Figure 6 for a schematic of this alternative):

Northern Area

- Treatment using EAB through the injection of lactate into the till aquifer;
- 51 injection wells were assumed, with 9 to be located on-property and the rest located off of the former SCP property; and
- Off-property injections of lactate were assumed to occur quarterly for 5 years, while on-property injections were assumed to continue for up to 30 years.

Southern Area

- Based on the bench-scale tests that were conducted, treatment using ISCO through the injection of a combination of sodium persulfate and sodium hydroxide into the aquifer;
- 20 injection wells were assumed, with 7 to be located on-property and the rest located off of the former SCP property; and
- A total of 3 injections were assumed, over a period of 3 to 5 years.

The details of the in-situ treatment technology to be used in each area, including the substances to be injected, the number of injection points, the extent of the treatment zone, and the timeframes for treatment would be refined during the remedial design, and may change significantly based on the final results of the pilot study and results from the pre-design investigation. The design assumptions will be further evaluated throughout the implementation of the remedy, and modified as necessary. However, the use of an in-situ treatment technology or technologies is expected to remain an appropriate remedy for OU3.

During and after the initial treatment period, MNA would be used to complete the remediation of OU3 groundwater. MNA addresses contaminated groundwater through ongoing natural attenuation processes accompanied by verification monitoring. A description of natural attenuation and the evidence that it is occurring at this Site is included in the Summary of Site Characteristics section of this ROD.

Institutional controls would also be part of this alternative. A deed notice is already in place which restricts the placement of groundwater wells on the former SCP property itself. In addition, a Classification Exception Area/Well Restriction Area (CEA/WRA) would be established to prevent the installation of wells within the affected area until the remediation is complete, and the need for other institutional controls would be evaluated during the design of the remedy. Because this remedy would result in hazardous substances, pollutants, or contaminants remaining on the Site above levels that allow for unlimited use and unrestricted exposure for more than five years, a statutory review would be required.

Total Capital Cost	$1,772,439
Total Operation and Maintenance	$9,410,460
Total Present Worth Cost	$7,830,000
Estimated Timeframe	30 years

Alternative 3 – Groundwater Extraction and Treatment, Monitored Natural Attenuation, and Institutional Controls

In this alternative, contaminated groundwater from OU3 would be extracted, treated on-site, and then disposed of off-site. Detailed modeling would need to be conducted during the design to determine, for example, where to place the extraction wells, how many to place, and how to treat the contaminated water. However, to arrive at the cost estimates above, it was assumed that five extraction wells screened in the till unit to just above bedrock would be needed. Three would be located in the northern area and two would be placed in the southern area. All wells were assumed to pump at a rate of two gallons per minute.

Separate processes would be needed to treat the water contaminated with 1,4-dioxane differently than the water contaminated with other VOCs only, since 1,4-dioxane is both much more soluble in water and does not adsorb as readily to carbon as the other VOCs present in the groundwater. Disposal of the treated water would be either directly to a surface water body or to a publicly owned treatment facility.

As with Alternative 2, other than for the 1,4-dioxane, which does not naturally biodegrade, MNA would be used to address contamination outside of the extraction zone. The extraction zone would be refined during the remedial design, and institutional controls would be used to assure that the alternative remains protective while the remediation is being completed. Because this remedy would result in hazardous substances, pollutants, or contaminants remaining on the Site above levels that allow for unlimited use and unrestricted exposure for more than five years, a statutory review would be required.

Total Capital Cost	$1,972,573
Total Operation and Maintenance	$15,747,600
Total Present Worth Cost	$11,140,000
Estimated Timeframe	30 years

COMPARATIVE ANALYSIS OF ALTERNATIVES

In selecting a remedy, EPA considers the factors set out in Section 121 of CERCLA, 42 U.S.C. '9261, by conducting a detailed analysis of the viable remedial alternatives pursuant to the NCP, 40 CFR '300.430(e)(9) and Office of Solid Waste and Emergency Response (OSWER) Directive 9355.3-01. The detailed analysis consists of an assessment of the alternatives against each of nine evaluation criteria and comparative analysis focusing upon the relative performance of each alternative against those criteria.

Threshold Criteria - *The first two criteria are known as "threshold criteria" because they are the minimum requirements that each response measure must meet in order to be eligible for selection as a remedy.*

1. **Overall Protection of Human Health and the Environment**

This criterion addresses whether each alternative provides adequate protection of human health and the environment and describes how risks posed through each exposure pathway are eliminated, reduced, or controlled, through treatment, engineering controls, and/or institutional controls.

Alternative 1, no action, would not provide protection of human health and the environment in the long term, since contamination would persist in the groundwater.

Alternative 2, in-situ treatment, and Alternative 3, ex-situ treatment, would eliminate risk through treatment or removal of the contaminated groundwater in the long term, and would be protective in the short term through the placement of institutional controls. Both would comply with the objectives of the remedial action.

2. Compliance with applicable or relevant and appropriate requirements (ARARs)

Section 121(d) of CERCLA and NCP '300.430(f)(1)(ii)(B) require that remedial actions at CERCLA sites at least attain legally applicable or relevant and appropriate federal and state requirements, standards, criteria and limitations which are collectively referred to as AARARs,@ *unless such ARARs are waived under CERCLA Section 121(d)(4).*

Applicable requirements are those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that specifically address a hazardous substance, a pollutant, contaminant, remedial action, location, or other circumstance found at a CERCLA site. Only the State standards that are identified by a state in a timely manner and that are more stringent than federal requirements may be applicable. Relevant and appropriate requirements are those clean-up standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that, while not Aapplicable@ *to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site, address problems or situations sufficiently similar to those encountered at the CERCLA site that their use is well-suited to the particular site. Only those state standards that are identified in a timely manner and are more stringent than federal requirements may be relevant and appropriate.*

Compliance with ARARs addresses whether a remedy will meet all of the applicable or relevant and appropriate requirements of federal and state environmental statutes or provides a basis for invoking a waiver.

Actions taken at any Superfund site must meet all ARARs of federal and state law, or provide grounds for invoking a waiver of these requirements. These include chemical-specific, location-specific and action-specific ARARs.

ARARs apply to actions taken. As such, they are not applicable to Alternative 1, no action.

Alternatives 2 and 3 will comply with ARARs over time. Both would comply with chemical-specific ARARs through either treatment or removal of contaminated groundwater, though Alternative 2 would likely achieve chemical-specific ARARs faster than Alternative 3. Similarly, both alternatives would meet action-specific ARARs, though due to the need for disposal of treated groundwater, it would be much more difficult for Alternative 3 to meet them.

Primary Balancing Criteria - *The next five criteria, criteria 3 through 7, are known as Aprimary balancing criteria.@ These criteria are factors with which tradeoffs between response measures are assessed so that the best option will be chosen, given the site-specific data and conditions.*

3. Long-term Effectiveness and Permanence

Long-term effectiveness and permanence refers to expected residual risk and the ability of a remedy to maintain reliable protection of human health and the environment over time, once cleanup levels have been met. This criterion includes the consideration of residual risk that will remain on site following remediation and the adequacy and reliability of controls.

Alternative 1, No Action, would not be effective in the long term, because contamination would remain the deep and off-property groundwater above applicable standards for the foreseeable future.

Both Alternatives 2 and 3 would provide long-term effectiveness and permanence, since under both alternatives the impacted groundwater would either be treated or removed. Both would require long-term monitoring until ARARs are achieved, though Alternative 3 would likely require a longer active treatment time.

4. Reduction of Toxicity, Mobility or Volume of Contaminants Through Treatment

Reduction of toxicity, mobility, or volume through treatment refers to the anticipated performance of the treatment technologies that may be included as part of a remedy.

Alternative 1 would not reduce the toxicity, mobility or volume of contaminated soil.

Alternative 2 would reduce the toxicity, mobility, and volume of contaminants in the groundwater through treatment. The treatment would degrade contaminants to less-toxic forms, thereby reducing both toxicity and volume, and would reduce mobility through direct source control. Alternative 3 would reduce both the mobility and volume of contaminants in the groundwater, but would not enhance the reduction of toxicity in-situ that is already occurring through natural attenuation processes.

5. Short-term Effectiveness
Short-term effectiveness addresses the period of time needed to implement the remedy and any adverse impacts that may be posed to workers, the community and the environment during construction and operation of the remedy until cleanup levels are achieved.

Alternative 1, no action, would have no short term risks because no action would be taken.

Both Alternatives 2 and 3 would have some impact to the community during pre-design investigations. The impacts to the community posed by Alternative 2 would be low. Periodic access to some properties would be needed to complete injections during the active treatment period and during the long-term monitoring of wells.

Alternative 3 would have a much greater impact on the community due to the need to construct a treatment plant and a groundwater extraction and discharge system. Since a conveyance system to carry the water from the extraction wells to the treatment system would need to be installed, including along roadways and utility corridors, construction of the system would impact both public and private properties. In addition, access to construct such a system would be problematic.

6. Implementability
Implementability addresses the technical and administrative feasibility of a remedy from design through construction and operation. Factors such as availability of services and materials, administrative feasibility, and coordination with other governmental entities are also considered.

Alternative 1, no action, requires no implementation since no action would be taken.

Alternative 2 is readily implementable. The materials needed are generally available and only limited access will be needed to properties near the Site.

Alternative 3 is also implementable, but it would pose a greater challenge to implement than Alternative 2. While the materials needed should be readily available, more invasive access will be needed to properties to install pipelines and extraction wells.

7. Cost
Includes estimated capital and O&M costs, and net present worth value of capital and O&M costs.

Alternative 1 has no associated cost, but is not considered protective of human health and the environment.

The estimated present worth cost of Alternative 2 is $7,830,000. This includes total capital costs of $1,772,439 as well as the Operations and Maintenance (O&M) costs associated with remedy, over a 30-year timeframe.

The estimated present worth cost for Alternative 3 is $11,140,000, which includes total capital costs of $1,972,573 plus O&M costs over an estimated 30-year timeframe. While Alternative 3 has

only slightly higher capital costs than Alternative 2, it has significantly higher O&M costs due to the need to pump, treat and dispose of groundwater over the entire length of the remedy.

Modifying Criteria - *The final two evaluation criteria, criteria 8 and 9, are called Amodifying criteria@ because new information or comments from the state or the community on the Proposed Plan may modify the preferred remedy and cause another response measure to be considered.*

8. State/Support Agency Acceptance
Indicates whether based on its review of the RI/FS reports and the Proposed Plan, the state supports, opposes, and/or has identified any reservations with the selected response measure.

NJDEP concurs with the selected remedy, Alternative 2, in-situ treatment of contaminated groundwater, monitored natural attenuation, and institutional controls.

9. Community Acceptance
Summarizes the public=s general response to the proposed alternative and other information described in the Proposed Plan and the RI/FS reports. This assessment includes determining which of the response measures the community supports, opposes, and/or has reservations about.

During the public comment period, the community expressed its support for Alternative 2. No significant concerns were raised during the comment period. The attached Responsiveness Summary summarizes the comments received on the Proposed Plan.

PRINCIPAL THREAT WASTE

EPA defines Principal Threat Waste as "those source materials considered to be highly toxic or highly mobile that generally cannot be reliably contained or would present a significant risk to human health or the environment should exposure occur." Principal threat wastes are considered source materials.

This is the third of three operable units for the Site. The first operable unit provided an interim remedy for the Site. The second operable unit addressed remediation of the source material, including the excavation and off-site disposal of a hot spot area of contamination. The source materials addressed as part of the second operable unit constituted the principal threat wastes at the Site. This third and final operable unit will address the contaminated deep groundwater.

SELECTED REMEDY

Based upon consideration of the results of the Site investigation, the requirements of CERCLA, the detailed analysis of the response measures, and public comments, EPA has determined that Alternative 2 is appropriate for addressing the OU3 groundwater contamination. The selected alternative consists of the following components:

- $ Treatment of contaminated off-property and deep groundwater using in-situ treatment technologies, through the injection of a substance or substances into the groundwater to cause or enhance the breakdown of the contaminants of concern to less toxic forms;

- $ Monitored natural attenuation both during and after active treatment; and

- $ Institutional controls to assure that the remedy remains protective until cleanup goals are achieved.

The Selected Remedy was chosen over the other alternatives since it is readily implementable, will reduce the toxicity, mobility, and volume of contamination present in the groundwater, and will be effective in both the short- and long-term. The Selected Remedy greatly reduces the potential of risk to human health and the environment through treatment of the most highly-contaminated area. Bench- and pilot-scale tests conducted at the Site indicate that in-situ treatment approaches will be effective.

Green Remediation
Consistent with EPA Region 2's Clean and Green policy, EPA will evaluate the use of sustainable technologies and practices with respect to the implementation of the Selected Remedy.

STATUTORY DETERMINATIONS

As previously noted, Section 121(b)(1) of CERCLA mandates that a remedial action must be protective of human health and the environment, be cost-effective, and utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. Section 121(b)(1) also establishes a preference for remedial actions which employ treatment to permanently and significantly reduce the volume, toxicity, or mobility of the hazardous substances, pollutants, or contaminants at the Site. Section 121(d) of CERCLA further specifies that a remedial action must attain a degree of cleanup that satisfies ARARs under federal and state laws, unless a waiver can be justified pursuant to Section 121(d)(4) of CERCLA. As discussed below, EPA has determined that the selected remedy meets the requirements of Section 121 of CERCLA.

Protection of Human Health and the Environment

The Selected Remedy, Alternative 2, will be protective of human health and the environment through the use of in-situ treatment, monitored natural attenuation and institutional controls. In-situ treatment will reduce concentrations of contamination in groundwater over time, including at the source, monitoring both during and after treatment will be used to confirm that natural attenuation processes are occurring, and institutional controls will be use to ensure that no unacceptable exposures to OU3 groundwater occur.

The Selected Remedy will, over time, eliminate all significant risks to human health and the environment associated with potential future Site groundwater use. The action is expected to result in the reduction of the concentration of the chemicals of concern at the Site to below cleanup goals

over time. Implementation of the Selected Remedy will not pose unacceptable short-term cancer risks, non-cancer health hazards or adverse cross-media impacts.

Compliance with ARARs

At the completion of the response action, the Selected Remedy will have complied with all applicable ARARs, including, but not limited to:

Chemical-Specific ARARs:

- NJDEP Groundwater Quality Standard for Class II Groundwater, N.J.A.C. 7:9C

Location-Specific ARARs:

- Possibly the Federal National Environmental Policy Act (40 CFR 6, Appendix A)
- Possibly the New Jersey Flood Hazard Control Act (N.J.A.C. 7:13)

Action-Specific ARARS:

- Safe Drinking Water Act Underground Injection Control Program
- Well Drilling and Pump Installers Licensing Act
- Discharge to Groundwater Regulations
- Possibly New Jersey Pollutant Discharge Elimination System Rules (N.J.A.C. 7:14A)
- Occupational Safety and Health Act (OSHA, 29 USC 651-678)
- Possibly New Jersey Soil Erosion and Sediment Control Act (N.J.S.A. 4:24-39 et seq.)
- Institutional controls would be implemented in accordance with N.J.A.C. 7.26C (Subchapter 7)

Cost-Effectiveness

EPA has determined that the Selected Remedy is cost-effective and represents a reasonable value. In making this determination, the following definition was used: "A remedy shall be cost-effective if its costs are proportional to its overall effectiveness" (NCP §300.430(f)(1)(ii)(D)). EPA evaluated the "overall effectiveness" of those alternatives that satisfied the threshold criteria (i.e., were both protective of human health and the environment and ARAR-compliant). Overall effectiveness was evaluated by assessing three of the five balancing criteria in combination (long-term effectiveness and permanence; reduction in toxicity, mobility and volume through treatment; and short-term effectiveness). Overall effectiveness was then compared to costs to determine cost-effectiveness. The relationship of the overall effectiveness of the Selected Remedy was determined to be proportional to its costs and hence this alternative represents a reasonable value.

The Selected Remedy is cost-effective as it has been determined to provide the greatest overall protectiveness for its present worth costs.

Utilization of Permanent Solutions and Alternative Treatment Technologies to the Maximum Extent Practicable

EPA has determined that the Selected Remedy represents the maximum extent to which permanent solutions and treatment technologies can be utilized in a practicable manner at the Site. Of those alternatives that are protective of human health and the environment and comply with ARARs, EPA has determined that the Selected Remedy provides the best balance of trade-offs in terms of the five balancing criteria, while also considering the statutory preference for treatment as a principal element and considering State and community acceptance.

The Selected Remedy satisfies the criteria for long-term effectiveness and permanence by preventing exposure to the contaminated groundwater until cleanup goals are met and treating the contaminants in-situ. The Selected Remedy presents less short-term risks the other active alternative as the treatment technique would have less impact on the community.

Preference for Treatment as a Principal Element

By utilizing treatment of the groundwater contamination source area, the Selected Remedy satisfies the statutory preference for remedies that employ treatment as a principal element.

Five-Year Review Requirements

Because this remedy will result in hazardous substances, pollutants, or contaminants remaining on the Site above levels that allow for unlimited use and unrestricted exposure for more than five years, a statutory review is indicated. In addition, the OU2 remedy resulted in hazardous substances, pollutants or contaminants remaining on-site above levels that allow for unlimited use and unrestricted exposure. As such, statutory five-year reviews are already being conducted to ensure the remedies for the Site are protective of human health and the environment. The next review is scheduled for completion in December 2012.

DOCUMENTATION OF SIGNIFICANT CHANGES

The Proposed Plan for the SCP Site was released for public comment on August 3, 2012 and the public comment period ran from that date through September 4, 2012.

All written and verbal comments submitted during the public comment period were reviewed by EPA. Upon review of these comments, EPA has determined that no significant changes to the remedy, as it was originally identified in the Proposed Plan, were necessary.

APPENDIX I

FIGURES

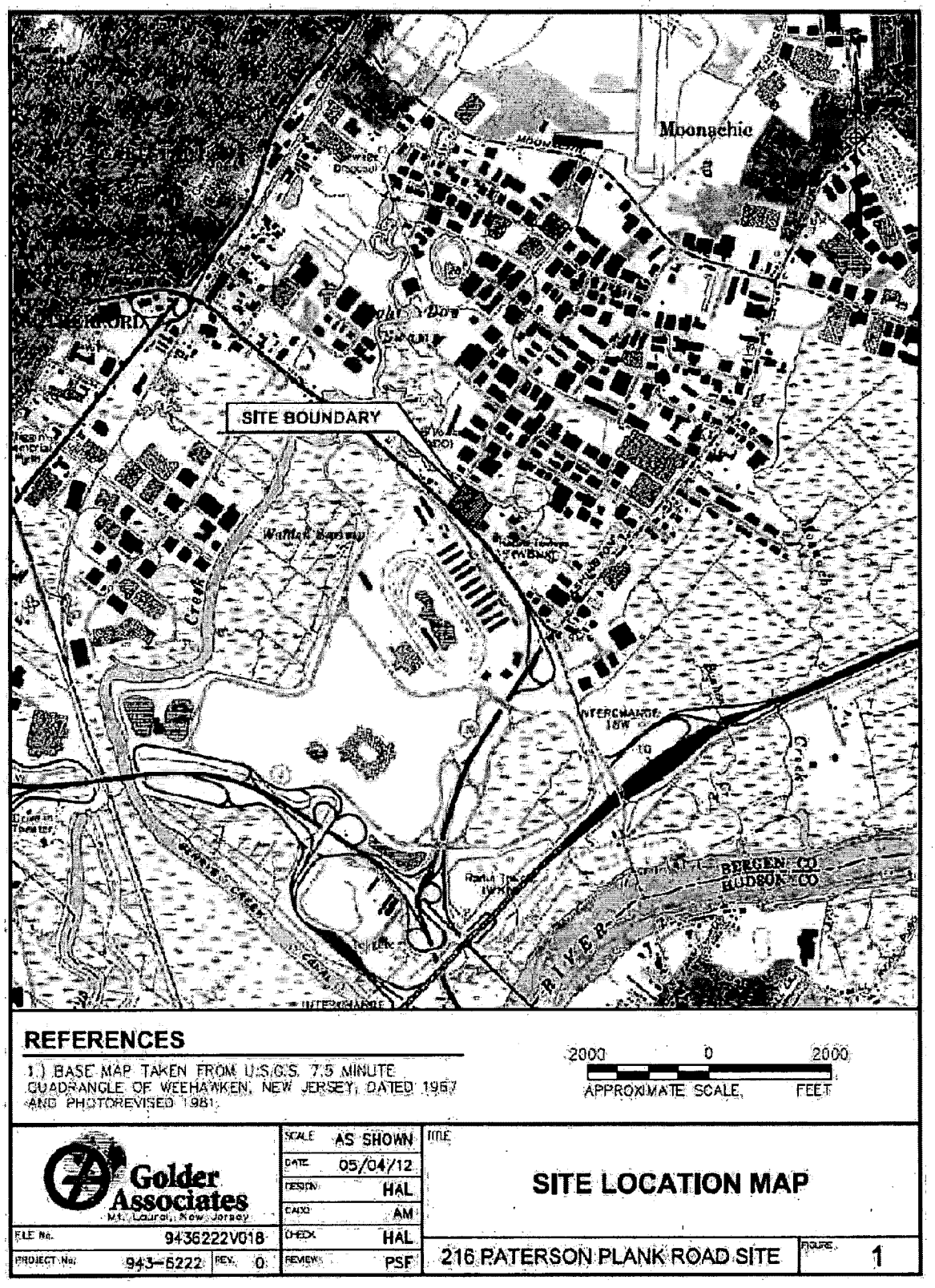


Figure 1
Scientific Chemical Processing Site, OU – Site Location Map

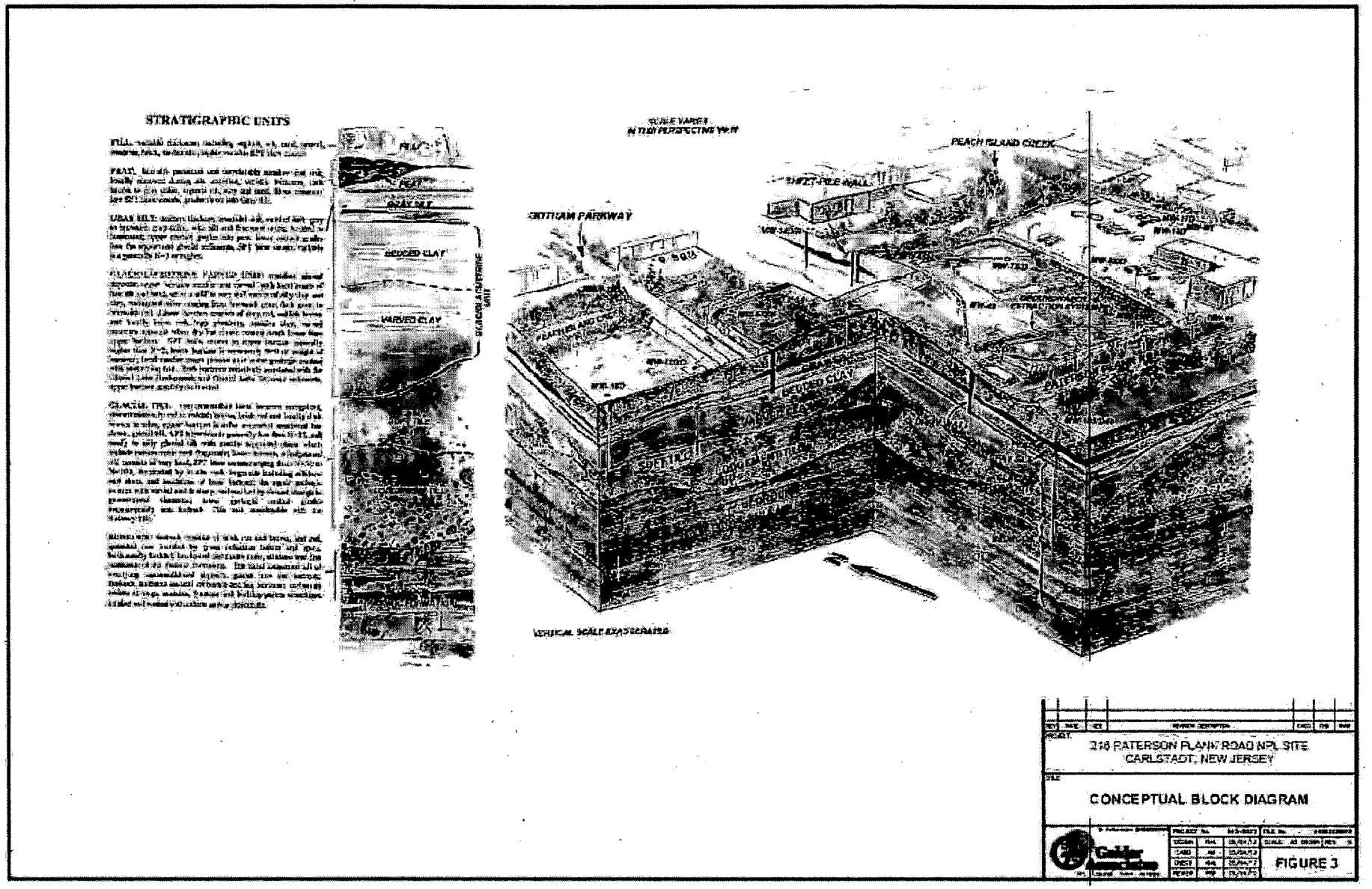


Figure 2
Scientific Chemical Processing Site, OU – Site Geology

Figure 3
Scientific Chemical Processing Site, OU – Site Layout

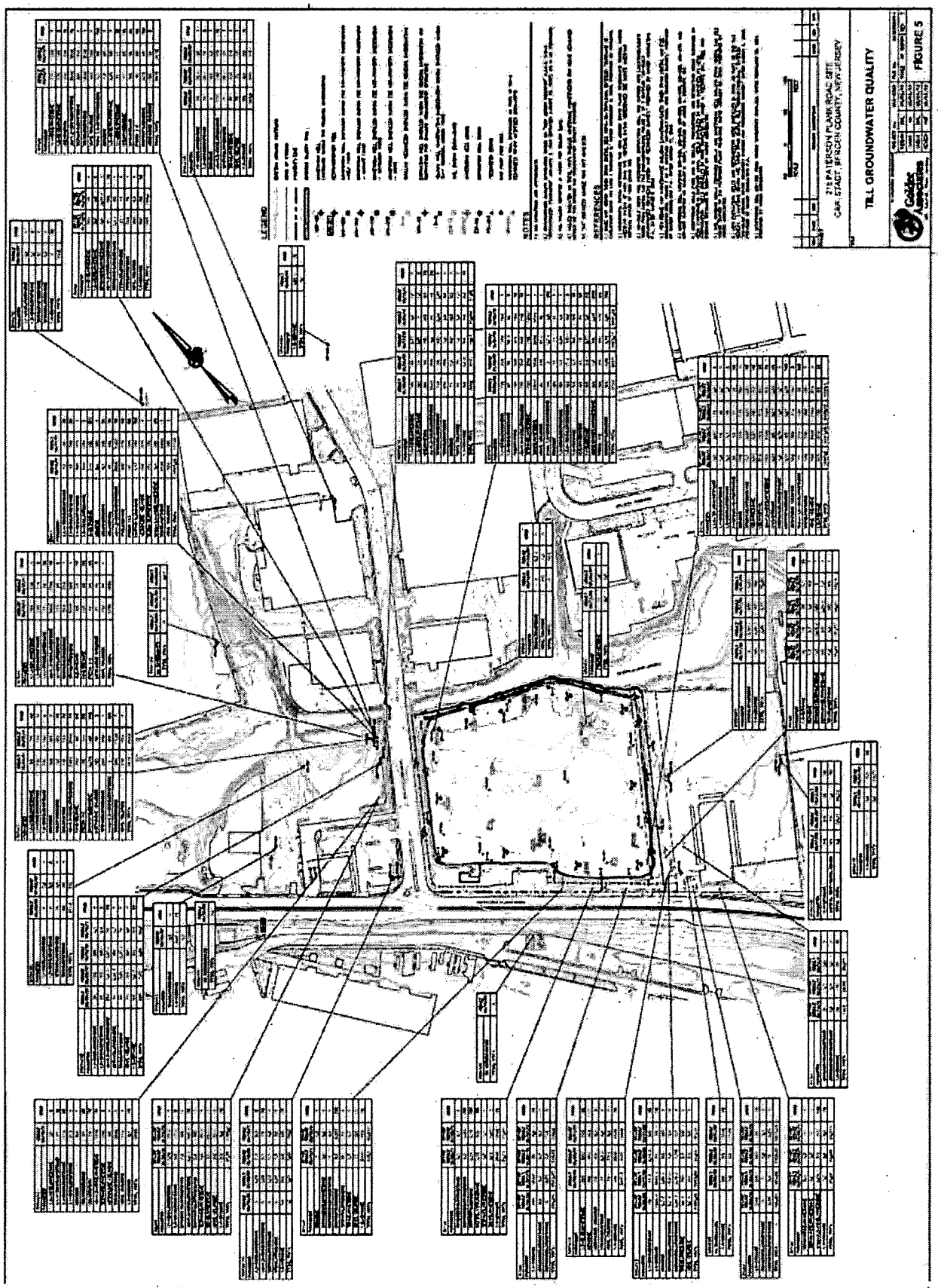


Figure 4
Scientific Chemical Processing Site, OU – Till Groundwater Quality

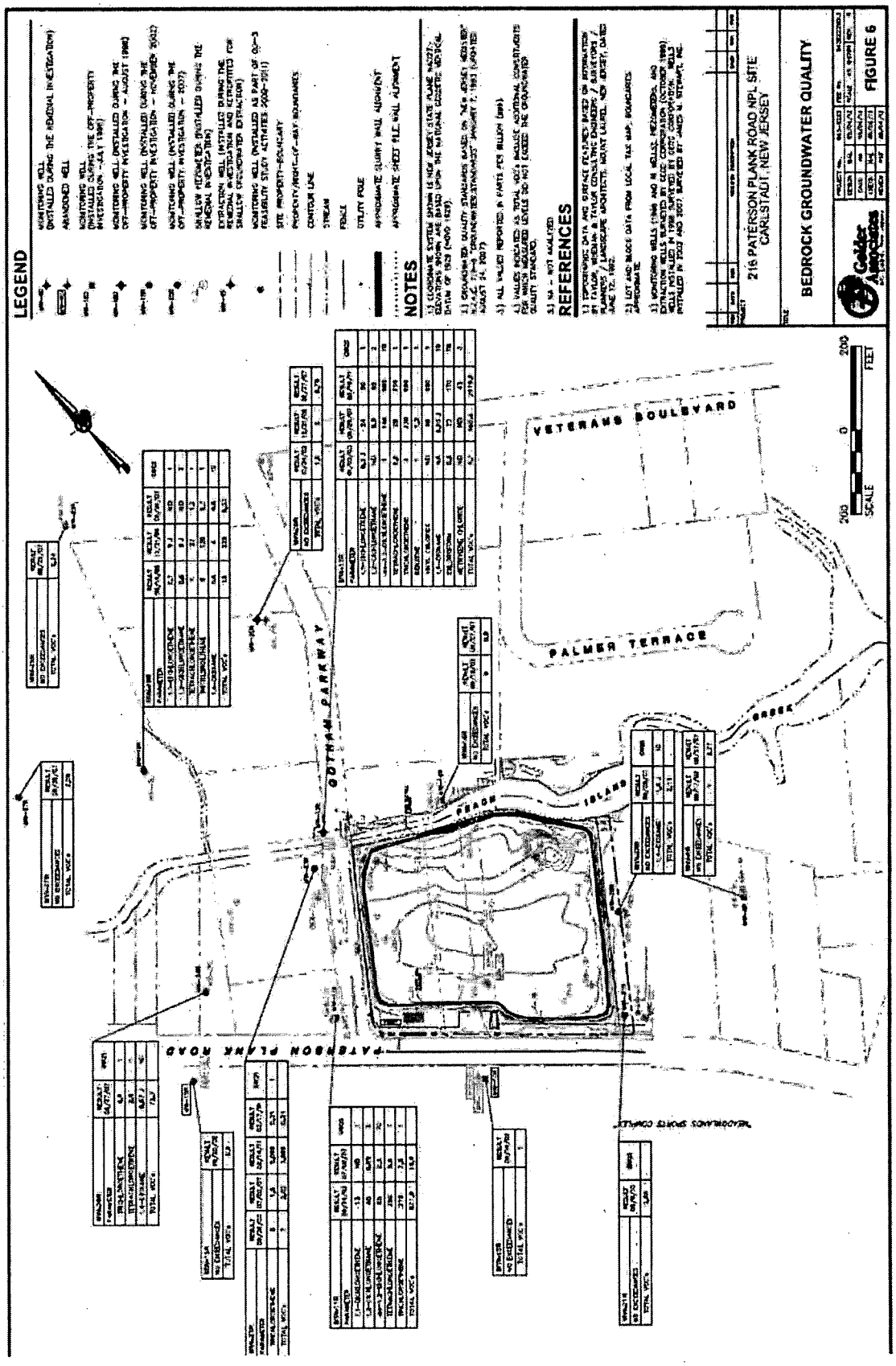


Figure 5
Scientific Chemical Processing Site, OU – Bedrock Groundwater Quality

Figure 6
Scientific Chemical Processing Site, OU – Selected Remedy

APPENDIX II

TABLES

Table 1
Conceptual Site Model
Scientific Chemical Processing Site, OU-3 - Carlstadt, New Jersey

Scenario Timeframe	Medium	Exposure Medium	Receptor Population	Receptor Population	Receptor Age	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Current	Bedrock / Till Groundwater	Groundwater	Trespasser	Adolescent	Adolescent 12 to 18 years of age	Ingestion Dermal	None	Currently there are no water supply wells in bedrock/till groundwater and access to deep groundwater is incomplete for all receptors. The Site is currently active for industrial/commercial purposes and is fenced with limited access for trespassers.
Future	Bedrock / Till Groundwater	Tap Water	Tap Water	Resident	Adult	Ingestion Dermal	Quantitative	Potential for future use of bedrock/till groundwater for residential consumption.
					Child	Ingestion Dermal	Quantitative	
	Bedrock / Till Groundwater	Tap Water	Water Vapor at Showerhead	Resident	Adult	Ingestion Dermal	Quantitative	Potential for future use of bedrock/till groundwater for residential consumption and indoor use such as showering.
					Child	Ingestion Dermal	Quantitative	
	Bedrock / Till Groundwater	Soil Vapor	Indoor Air	Resident	Adult	Inhalation	Quantitative	Vapor intrusion unlikely since deep bedrock groundwater is separated from surface by confining unit and shallow aquifer.
					Child	Inhalation	Quantitative	
	Bedrock / Till Groundwater	Tap Water	Tap Water	Industrial/ Commercial Worker	Adult	Ingestion Dermal	Quantitative	Potential for future use of bedrock/till groundwater for consumption by workers. Showering was not evaluated quantitatively since risks were below the risk range for residential exposures and evaluation of the worker exposures would be also be below the risk range.
							Quantitative	
	Bedrock / Till Groundwater	Soil Vapor	Indoor Air	Industrial/ Commercial Worker	Adult	Inhalation	Qualitative	Vapor intrusion unlikely since deep bedrock groundwater is separated from surface by confining unit and shallow aquifer.
							Qualitative	

Table 2
Exposure Point Concentrations for Chemicals of Concern
Scientific Chemical Processing Site, OU-3 - Carlstadt, NJ

Scenario Timeframe:	Future
Medium:	Groundwater
Exposure Medium:	Tap Water

Exposure Point	Chemicals of Potential Concern	Concentrations Detected		Units (2)	Frequency of Detection	Exposure Point Concentration - RME and CTE			
		Minimum (1)	Maximum			Value	Units	Statistic (3)	Rationale
Tap Water	1,1-Dichloroethane	0.1 (J)	600	ug/L	45/73	91	ug/l	97.5% KM (Chebyshev) UCL	ProUCL
	1,2,4-trichlorobenzene	0.19 (J)	77 (J)	ug/L	2/70	11	ug/l	97.5% KM (Chebyshev) UCL	ProUCL
	1,2-dichloroethane	0.46 (J)	120	ug/L	22/71	11	ug/l	05% (KM) (t) UCL	ProUCL
	cis-1,2-dichloroethene	0.1 (J)	910	ug/L	51/71	235	ug/l	97.5% KM (Chebyshev) UCL	ProUCL
	1,4-Dioxane	0.47 (J)	4,300	ug/L	36/46	1,958	ug/l	99% KM (Chebyshev) UCL	ProUCL
	benzene	0.1 (J)	420	ug/L	23/72	60	ug/l	97.5% KM (Chebyshev) UCL	ProUCL
	chloroform	0.45 (J)	200 (J)	ug/L	34/72	18	ug/l	95% KM (BCA) UCL	ProUCL
	Tetrachloroethylene	0.1 (J)	1,000	ug/L	33/71	215	ug/l	97.5% KM (Chebyshev) UCL	ProUCL
	Trichloroethylene	0.12 (J)	3,600	ug/L	51/72	735	ug/l	97.5% KM (Chebyshev) UCL	ProUCL
	vinyl chloride	0.21 (J)	150 (J)	ug/L	19/72	12	ug/l	95% KM (t) UCL	ProUCL

(1) The Qualifier code (J) indicates that the analyte was detected and is considered an estimated value. Data was obtained from RAGS Part D - Table 3 in the Baseline Human Health Risk Assessment.

(2) Units of detection were micrograms/liter (or ug/l) which are equivalent to parts per billion (ppb).

(3) The statistical methods provided were based on recommendations from ProUCL version 4.1 available at: http://www.epa.gov/esd/tsc/software.htm. The calculations were obtained from RAGS Part D Table 3.1 and ProUCL Statistical Outputs provided in the Baseline Human Health Risk Assessment.

Table 3A
Non-Cancer Toxicity Data - Oral/Dermal
Scientific Chemical Processing Site, OU-3 - Carlstadt, New Jersey

Chemicals of Concern	Chronic/ Subchronic	Oral RfD		Dermal (1)		Absorbed RfD for Dermal		Primary Target Organ	Combined Uncertainty/ Modifying	RfD Target (organs)	
		Value	Units	Value	Reference	Value (2)	Units			Sources (3)	Date (MM/DD/YYYY)
1,1-dichloroethane	Chronic	0.2	mg/kg-day	1	EPA (2004)	0.2	mg/kg-day	kidney	3000/1	PPRTV	9/27/2006
1,2,4-trichlorobenzene	Chronic	0.01	mg/kg-day	1	EPA (2004)	0.01	mg/kg-day	kidney	1000/1	IRIS	11/1/1996
1,2-dichloroethane	Chronic	0.02	mg/kg-day	1	EPA (2004)	0.02	mg/kg-day	neurological effects	3000/1	PPRTV	10/1/2010
cis-1,2-dichloroethene	Chronic	0.002	mg/kg-day	1	EPA (2004)	0.002	mg/kg-day	Kidney	3000/1	IRIS	9/30/2010
1,4-Dioxane	Chronic	0.03	mg/kg-day	1	EPA (2004)	0.03	mg/kg-day	Liver, Kidney	300/1	IRIS	8/11/2010
benzene	Chronic	0.004	mg/kg-day	1	EPA (2004)	0.004	mg/kg-day	blood	300	IRIS	4/17/2003
chloroform	Chronic	0.01	mg/kg-day	1	EPA (2004)	0.01	mg/kg-day	liver	1000/1	IRIS	10/19/2001
Tetrachloroethylene	Chronic	0.01	mg/kg-day	1	EPA (2004)	0.01	mg/kg-day	Neurological effects	1000/1	IRIS	2/10/2012
Trichloroethylene	Chronic	0.001	mg/kg-day	1	EPA (2004)	0.001	mg/kg-day	Heart, thymus, blood	10/1	IRIS	9/28/2011
vinyl chloride	Chronic	0.003	mg/kg-day	1	EPA (2004)	0.003	mg/kg-day	Liver	30/1	IRIS	8/7/2000

(1) The oral absorption efficiency data was obtained from the Risk Assessment Guidance for Superufnd, Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment). Final
(2) Dermal Reference Dose (RfD) values were calculated by multiplying the oral RfD by the Oral Absorption Efficiency for Dermal.
(3) IRIS is the Integrated Risk Information System available at www.epa.gov/iris.
mg/kg-day is milligrams/kilogram bodyweight - day
EPA (2004). Risk Assessment Guidance for Superufnd (RAGS). Volume I. Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assesment). Final. EPA/540/R/99/005. July 2004.

Table 3B
Non-Cancer Toxicity Data - Inhalation
Scientific Chemical Processing Site, OU-3 - Carlstadt, New Jersey

Chemicals of Concern	Chronic/ Subchronic	Inhalation RfC		Primary Target Organ	Combined Uncertainty/ Modifying Factors	RfC Target Organs	
		Value	Units			Sources (1)	Date (MM/DD/ YYYY)
1.1-dichloroethane	Chronic	--	ug/m3	--			
1,2,4-trichloroebenzene	Chronic	2	ug/m3	urinary porphyrin excretion	3000/1	PPRTV	6/16/2009
1,2-dichloroethane	Chronic	2400	ug/m3	NOAEL	90	ATSDR	Sep-01
cis-1,2-dichloroethene	Chronic	--	ug/m3	--	--	IRIS	9/30/2010
1,4-Dioxane *	Chronic	3.6E+03	ug/m3	No Observed Adverse Effects Level	30	ATSDR	8/1/2007
Benzene	Chronic	3.0E+01	ug/m3	blood	30	IRIS	4/17/2003
Chloroform	Chronic	9.8E+01	ug/m3	decreased blood cell count	10	ATSDR	8/1/2007
Tetrachloroethylene	Chronic	4.0E+01	ug/m3	Neurological	1000/1	IRIS	2/10/2012
Trichloroethylene	Chronic	2.0E+00	ug/m3	Thymus, heart	10/1	IRIS	9/28/2011
Vinyl chloride	Chronic	1.0E+02	ug/m3	liver	30/1	IRIS	8/7/2000

* An updated toxicity value for chronic exposure to 1,4-dioxane was issued by ATSDR in April of 2012. The comparison of the intake/Exposure Concentration provided in Table 7.1 to this updated toxicity values indicates tht the non-cancer HI remains below the level of concern of an HQ = 1. The resulting HI changes from 3.7E-08 to 1.2E-06.

-- Indicates that a toxicity value is not available based on the Toxicity Hierarchy available in the OSWER Toxicity Hierarchy memo dated 12/5/2003 (OSWER Directive 9285.7-53).

(1) References for inhlation RfC are: ATSDR - Agency for Toxic Substances and Disease Registry and IRIS is the Integrated Risk Information System.

Table 4A
Cancer Toxicity Data - Oral/Dermal
Scientific Chemical Processing Site, OU-3 - Carlstadt, New Jersey

Chemicals of Concern	Oral Cancer Slope Factor		Dermal Cancer Slope		Weight of Evidence Cancer Guidelines Description	Sources	Date (MM/DD/YYYY)
	Value	Units	Value	Units			
1,1-dichloroethane	5.70E-03	(mg/kg-day)-1	5.70E-03	(mg/kg-day)-1	C	IRIS	2/1/1994
1,2,4-trichlorobenzene	2.90E-02	(mg/kg-day)-1	2.90E-02	(mg/kg-day)-1	Likely to be carcinogenic in humans	PPRTV	6/16/2009
1,2-dichloroethane	9.10E-02	(mg/kg-day)-1	9.10E-02	(mg/kg-day)-1	B2	IRIS	1/1/1991
cis-1,2-dichloroethene	--	(mg/kg-day)-1	--	mg/kg-day	D - not classifiable	IRIS	2/1/1995
1,4-Dioxane	1.0E-02	(mg/kg-day)-1	1.0E-02	mg/kg-day	Likely to be carcinogenic in humans	IRIS	8/11/2010
Benzene	5.50E-02	(mg/kg-day)-1	5.50E-02	(mg/kg-day)-1	A	IRIS	1/19/2000
chloroform	3.10E-02	(mg/kg-day)-1	3.10E-02	(mg/kg-day)-1	B2	CalEPA	10/19/2001
Tetrachloroethylene	2.1E-03	(mg/kg-day)-1	2.1E-03	mg/kg-day	Known human carcinogen.	IRIS	2/10/2012
Trichloroethylene	4.6E-02	(mg/kg-day)-1	4.6E-02	mg/kg-day	Likely to be carcinogenic in humans	IRIS	9/28/2011
vinyl chloride	7.2E-01	(mg/kg-day)-1	7.2E-01	(mg/kg-day)-1	A	IRIS	8/7/2000

-- Indicates that a toxicity value is not available based on the Toxicity Hierarchy available in the OSWER Toxicity Hierarchy memo dated 12/5/2003 (OSWER Directive

mg/kg-day is milligrams/kilogram bodyweight/day.

(1) IRIS is the Integrated Risk Information System available at www.epa.gov/iris.

Table 4B
Cancer Toxicity Data - Inhalation
Scientific Chemical Processing Site, OU-3 - Carlstadt, New Jersey

Chemicals of Concern	Unit Risk		Inhalation Cancer Slope Factor		Weight of Evidence Cancer Guidelines Description	Inhalation Unit Risk	
	Value	Units	Value	Units		Sources (3)	Date (MM/DD/YYYY)
1,1-dichloroethane	1.60E-06	$(ug/m^3)^{-1}$			C	CalEPA	12/1/1996
1,2,4-trichlorobenzene					D - not classifiable	IRIS	3/1/1991
1,2-dichloroethane	2.60E-05	$(ug/m^3)^{-1}$			B2	IRIS	1/1/1991
cis-1,2-dichloroethene	--	$(ug/m^3)^{-1}$	--	--	D - not classifiable	IRIS	2/1/1995
1,4-Dioxane	--	--	--	--	Likely to be carcinogenic in humans	IRIS	9/30/2010
1,4-Dioxane	7.7E-06	$(ug/m^3)^{-1}$				CalEPA	2/1/2009
benzene	7.8E-06	$(ug/m^3)^{-1}$			A - known human carcinogen	IRIS	1/19/2000
chloroform	2.30E-05	$(ug/m^3)^{-1}$			B2	IRIS	10/19/2001
Tetrachloroethylene	2.6E-07	$(ug/m^3)^{-1}$	--	--	Known human carcinogen.	IRIS	2/10/2012
Trichloroethylene	4.1E-06	$(ug/m^3)^{-1}$	--	--	Likely to be carcinogenic in humans	IRIS	9/28/2011
vinyl chloride	4.4E-06	$(ug/m^3)^{-1}$			A - known human carcinogen	IRIS	8/7/2000

- indicates inhalation cancer slope factor was not used.
ug/m3 is micrograms/cubic meter
IRIS is the Integrated Risk Information System available at www.epa.gov/iris

Table 5A
Risk Characterization Summary
Scientific Chemical Processing Site, OU-3 - Carlstadt, NJ.

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Reasonable Maximum Exposure

				Carcinogenic Risk				Non-Cancer Hazard Quotient				
Medium	Exposure Medium	Exposure Point	Chemicals of Concern	Ingestion	Inhalation	Dermal	Exposue Routes Total	Primary Target Organs (Oral and Dermal/ Inhalation)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Bedrock/Till Groundwater	Tap Water	Tap Water	1,1-dichloroethane	6.00E-06	2.00E-11	3.00E-07	6.3E-06	Kidney / --	--	--	0.0006	0.0006
			1,2,4-trichlorobenzene	4.00E-06	--	3.00E-06	7.0E-06	kidney / urinary tract	0.03	2.00E-06	0.03	0.06
			1,2-dichloroethane	6.00E-06	5.00E-11	2.00E-07	6.2E-06	neurological / NOAEL	0.02	2.00E-09	0.0005	0.02
			cis-1,2-dichloroethene	--	--	--	0.0E+00	Kidney / --	3.2	--	0.2	3.4
			1,4-Dioxane	2.3E-03	4.3E-10	5.4E-06	2.3E-03	Liver and Kidney / NOAEL	1.8	4E-08	0.004	1.8
			Benzene	4.00E-05	8.00E-11	4.00E-06	4.4E-05	blood / blood	0.4	8.00E-07	0.04	0.44
			Chloroform	7.00E-06	8.00E-11	4.00E-07	7.4E-06	liver / decreased blood cell	0.05	8.00E-08	0.003	0.05
			Tetrachloroethylene	5.3E-06	9.1E-12	2.1E-06	7.4E-06	Neurological effects/	0.98	2E-06	0.4	1.4
			Trichloroethylene	4.0E-04	5.1E-10	4.5E-05	4.5E-04	Heart, Thymus, Blood /	40	1E-04	4.6	44.6
			Vinyl chloride	1.0E-04	1.0E-11	3.0E-06	1.0E-04	liver / liver	0.1	5E-08	0.004	0.1
			Chemical Total	3E-03	1E-09	6E-05	3E-03		47	0.0001	5	52
Groundwater Risk Total							3E-03					52
Total Risk							3E-03					52

HI - Liver and Kidney	1.8
HI- Kidney	3.4
HI - Neurological Effects	1.4
HI - Heart, thymus, blood	44.6

Central Tendency Exposure

				Carcinogenic Risk				Non-Cancer Hazard Quotient				
Medium	Exposure Medium	Exposure Point	Chemicals of Concern	Ingestion	Inhalation	Dermal	Exposue Routes Total	Primary Target Organs (Oral and Dermal/ Inhalation)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Bedrock/Till Groundwater	Tap Water	Tap Water	1,1-dichloroethane	9.00E-07	5.00E-13	6.00E-08		Kidney / --	--		0.0004	0.0004
			1,2,4-trichlorobenzene	6.00E-07		6.00E-07	1E-06	Kidney / urinary tract	0.01	0.0000001	0.02	0.03
			1,2-dichloroethane	2.00E-06	1.00E-12	7.00E-08	2E-06	Neurological effects / NOAEL	0.01	0.0000000001	0.0003	0.008
			cis 1,2-dichloroethylene	--	--	--		Kidney / --	2.00	--	0.1	2.1
			1,4-Dioxane	3.4E-04	9.4E-12	1.0E-06	3E-04	Liver and Kidney / NOAEL	0.89	0.000000003	0.003	0.89
			benzene	6.0E-06	2.0E-12	7.0E-07	7E-06	blood / blood	0.20	0.00000006	0.03	0.23
			chloroform	1.0E-06	2.0E-12	8.0E-08	1E-06	liver / decreased blood cell count	0.03	0.000000006	0.002	0.032
			Tetrachloroethylene	8.0E-07	2.0E-13	3.9E-07	1E-06	Neurological effects / neurological	0.49	0.0000002	0.2	0.73
			Trichloroethylene	6.0E-05	1.1E-11	8.6E-06	7E-05	Heart, Thymus, Blood / thymus and heart	20.00	0.00001	2.9	22.9
			vinyl chloride	1.0E-05	2.0E-13	6.0E-07	1E-05	liver / liver	0.05	0.000000004	0.002	0.05
			Chemical Total	4E-04	3E-11	1E-05	4E-04		24	0.00001	3	27
Groundwater Risk Total							4E-04					27
Total Risk							4E-04					27

HI - Liver and Kidney	0.9
HI- Kidney	2.1
HI - Neurological Effects	0.7
HI - Heart, thymus, blood	22.9

-- indicates chemical not evaluated for carcinogenicity based on a lack of toxicity values.

Table 5B
Risk Characterization Summary
Scientific Chemical Processing Site, OU-3 - Carlstadt, NJ.

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Reasonable Maximum Exposure

Medium	Exposure Medium	Exposure Point	Chemicals of Concern	Carcinogenic Risk				Non-Cancer Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposue Routes Total	Primary Target Organs (Oral and Dermal/ Inhalation)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Bedrock/Till Groundwater	Tap Water	Tap Water	1,1-dichloroethane	2.80E-06	1.60E-11	1.40E-07	2.94E-06	Kidney / --	--	--	0.0015	0.0015
			1,2,4-trichlorobenzene	1.70E-06	--	1.50E-06	3.20E-06	kidney / urinary tract	7.00E-02	0.000006	0.06	0.1
			1,2-dichloroethane	5.60E-06	3.20E-11	1.80E-07	5.78E-06	neurological / NOAEL	0.04	0.000000006	0.0011	0.04
			cis-1,2-dichloroethene	--	--	--		Kidney / --	7.5	--	0.4	7.9
			1,4-Dioxane	1.1E-03	2.7E-10	2.5E-06	1.10E-03	Liver and Kidney /	4.2	0.0000001	0.0097	4.2
			benzene	1.80E-05	4.80E-11	1.80E-06	1.98E-05	blood / blood	0.95	0.000002	0.09	1.0
			chloroform	3.10E-06	4.60E-11	1.80E-07	3.28E-06	liver / decreased blood	0.12	0.0000002	0.007	0.1
			Tetrachloroethylene	2.5E-06	5.6E-12	1.0E-06	3.50E-06	Neurological effects/	2.30	0.000006	0.9	3.2
			Trichloroethylene	9.9E-04	1.7E-09	1.1E-04	1.10E-03	Heart, Thymus, Blood /	94	0.0004	11.0	105
			vinyl chloride	9.1E-05	1.2E-11	3.1E-06	9.41E-05	liver / liver	0.25	0.0000002	0.01	0.3
			Chemical Total	2E-03	2E-09	1E-04	2E-03		109	0.0004	12	122
Groundwater Risk Total							2E-03					122
Total Risk							2E-03					122

HI - Liver and Kidney	4.2
HI- Kidney	7.9
HI - Neurological Effects	3.2
HI - Heart, thymus, blood	105

Central Tendency Exposure

Medium	Exposure Medium	Exposure Point	Chemicals of Concern	Carcinogenic Risk				Non-Cancer Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposue Routes Total	Primary Target Organs (Oral and Dermal/ Inhalation)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Bedrock/Till Groundwater	Tap Water	Tap Water	1,1-dichloroethane	1.00E-06	5.00E-13	8.00E-08	1.08E-06	Kidney / --	--	--	0.0008	0.0008
			1,2,4-trichlorobenzene	9.00E-07	--	8.00E-07	1.70E-06	kidney / urinary tract	0.03	0.0000002	0.03	0.0600002
			1,2-dichloroethane	3.00E-06	1.00E-12	1.00E-07	3.10E-06	neurological / NOAEL	0.02	0.0000000002	0.0006	0.02
			cis-1,2-dichloroethene	--	--	--	--	Kidney / --	3.8	--	0.2	4.0
			1,4-Dioxane	5.4E-04	8.0E-12	1.4E-06	5.41E-04	Liver and Kidney /	2.1	0.000000003	0.005	2.1
			benzene	9.0E-06	1.0E-12	1.0E-06	1.00E-05	blood / blood	0.5	--	0.05	0.6
			chloroform	2.00E-06	1.00E-12	1.00E-07	2.10E-06	liver / decreased blood	0.06	0.000000007	0.004	0.06
			Tetrachloroethylene	1.2E-06	2.0E-13	5.3E-07	1.73E-06	Neurological effects/	1.1	0.0000002	0.5	1.6
			Trichloroethylene	4.9E-04	5.0E-11	6.2E-05	5.52E-04	Heart, Thymus, Blood /	47	0.00001	5.9	52.9
			vinyl chloride	5.0E-05	4.0E-13	2.0E-06	5.20E-05	liver / liver	0.1	0.000000005	0.005	0.1
			Chemical Total	1.1E-03	6.2E-11	6.8E-05	1E-03		54.7	0.00001	6.7	61
Groundwater Risk Total							1E-03					61
Total Risk							1E-03					61

HI - Liver and Kidney	2.1
HI- Kidney	4
HI - Neurological Effects	1.6
HI - Heart, thymus, blood	52.9

-- indicates chemical not evaluated for carcinogenicity based on a lack of toxicity values.

Table 5C
Risk Characterization Summary
Scientific Chemical Processing Site, OU-3 - Carlstadt, NJ.

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Reasonable Maximum Exposure Assumptions

				Carcinogenic Risk				Non-Cancer Hazard Quotient				
Medium	Exposure Medium	Exposure Point	Chemicals of Concern	Ingestion	Inhalation	Dermal	Exposue Routes Total	Primary Target Organs (Oral and Dermal/ Inhalation)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Bedrock/Till Groundwater	Tap Water	Tap Water	1,1 dichloroethane	1.80E-06	--	4.50E-09	1.80E-06	blood	--	--	0.0001	0.0001
			1,2,4-trichlorobenzene	1.10E-06	--	4.30E-07	1.53E-06	kidney	0.01	--	0.004	0.01
			1,2-dichloroethane	3.60E-06	--	5.10E-08	3.65E-06	neurological effects	0.006	--	0.00008	0.006
			cis-1,2-dichloroethene	--	--	--		Kidney	1.1	--	0.03	1.1
			1,4-Dioxane	6.8E-04	--	7.2E-07	6.81E-04	Liver and Kidney	0.6	--	0.0007	0.6
			benzene	1.1E-05	--	5.1E-07	1.15E-05	blood	0.1	--	0.01	0.1
			chloroform	2.00E-06	--	5.00E-08	2.05E-06	liver	0.02	--	0.001	0.02
			Tetrachloroethylene	1.6E-06	--	3.0E-07	1.90E-06	Neurological effects	0.35	--	0.1	0.4
			Trichloroethylene	1.2E-04	--	6.0E-06	1.26E-04	Heart, Thymus, Blood	14.0	--	0.7	14.7
			vinyl chloride	2.9E-05	--	4.4E-07	2.94E-05	liver	0.04	--	0.001	0.04
			Chemical Total	8.5E-04		8.5E-06	9E-04		16.3	--	0.8	17
		Groundwater Risk Total					9E-04					17
Total Risk							9E-04					17

HI - Liver and Kidney	0.6
HI- Kidney	1.1
HI - Neurological Effects	0.4
HI - Heart, thymus, blood	14.7

Central Tendency Exposure

				Carcinogenic Risk				Non-Cancer Hazard Quotient				
Medium	Exposure Medium	Exposure Point	Chemicals of Concern	Ingestion	Inhalation	Dermal	Exposue	Primary Target Organs	Ingestion	Inhalation	Dermal	Exposure
Bedrock/Till Groundwater	Tap Water	Tap Water	1,1-dichloroethane	3.00E-07	--	1.00E-08	3.10E-07	blood		--	0.0001	0.0001
			1,2,4-trichlorobenzene	2.00E-07	--	1.00E-07		kidney	0.005	--	0.004	0.009
			1,2-dichloroethane	5.00E-07	--	1.00E-08	5.10E-07	neurological effects	0.003	--	0.0001	0.003
			cis-1,2-dichloroethene	--	--	--		Kidney	0.6	--	0.03	0.6
			1,4-Dioxane	1.0E-04	--	2.1E-07	1.00E-04	Liver and Kidney	0.3	--	0.0007	0.3
			benzene	2.00E-06	--	1.00E-07	2.10E-06	blood	0.07	--	0.01	0.08
			chloroform	3.00E-07	--	2.00E-08	3.20E-07	liver	0.009	--	0.001	0.01
			Tetrachloroethylene	2.3E-07	--	7.9E-08	3.09E-07	Neurological effects	0.18	--	0.06	0.2
			Trichloroethylene	1.7E-05	--	1.7E-06	1.87E-05	Heart, Thymus, Blood	7.2	--	0.7	7.9
			vinyl chloride	4.0E-06	--	1.0E-07	4.10E-06	liver	0.02	--	0.0006	0.02
			Chemical Total	1.2E-04		2.3E-06	1.3E-04		8.4	--	0.8	9.2
		Groundwater Risk Total					1E-04					9
Total Risk							1E-04					9

HI - Liver and Kidney	0.3
HI- Kidney	0.6
HI - Neurological Effects	0.2
HI - Heart, thymus, blood	7.9

-- indicates chemical not evaluated for carcinogenicity based on a lack of toxicity values.
*Inhalation risks were not calculated for the industrial worker since the risks to the resident from showering were below the risk range.

Table 6
Cleanup Goals
Scientific Chemical Processing Site, OU3 – Carlstadt, New Jersey

COC	MCL ug/l	NJ GWQS ug/l	Cleanup Goal ug/l
1,1-Dichloroethane	-	50	50
1,2,4-Trichlorobenzene	70	9	9
1,2-Dichloroethane	5	2	2
cis-1,2-Dichloroethene	70	70	70
1,4-Dioxane	-	10	10
Benzene	5	1	1
Chloroform	70	70	70
Tetrachloroethene	5	1	1
Trichloroethene	5	1	1
Vinyl Chloride	2	1	1

Notes:
MCL - Maximum Contaminant Level, the federal drinking water standard
NJ GWQS - New Jersey Groundwater Quality Standard
The Cleanup Goal is the lower of the MCL or the NJ GWQS
ug/l - micrograms per liter, or parts per billion (ppb)

APPENDIX III

ADMINISTRATIVE RECORD INDEX

ADMINISTRATIVE RECORD INDEX OF DOCUMENTS

FINAL

08/01/2012 Region ID: 02

Site Name: SCIENTIFIC CHEMICAL PROCESSING
CERCLIS: NJD070565403
OUID: 03
SSID: 0265
Action:

Region ID: 02
Doc ID: 123493
Bates: **To:**
Date: 08/01/2012
Pages: 9
Title: ADMINISTRATIVE RECORD INDEX FOR OU3 FOR THE SCIENTIFIC CHEMICAL PROCESSING SITE
Doc Type: INDEX

	Name	Organization
Author:	,	US ENVIRONMENTAL PROTECTION AGENCY REGION 2

	Name	Organization

Related Document(s):

Region ID: 02
Doc ID: 123882
Bates: R2-0000001 **To:** R2-0000270
Date: 12/21/1995
Pages: 270
Title: FINAL WORK PLAN AMENDMENT FOCUSED FEASIBILITY STUDY FIRST OPERABLE UNIT SOILS AND ADDITIONAL OFF-PROPERTY INVESTIGATION FOR THE 216 PATERSON PLANK ROAD SITE AND THE SCIENTIFIC CHEMICAL PROCESSING SUPERFUND SITE
Doc Type: PLAN

	Name	Organization
Author:	,	GOLDER ASSOCIATES INC

	Name	Organization
Addressee:	,	216 PATERSON PLANK ROAD COOPERATING PRP GROUP

Related Document(s):

Region ID: 02
Doc ID: 123883
Bates: R2-0000271 **To:** R2-0000272
Date: 12/21/1995
Pages: 2
Title: TRANSMITTAL OF THE FINAL WORK PLAN AMENDMENT FOCUSED FEASIBILITY STUDY FIRST OPERABLE UNIT SOILS AND ADDITIONAL OFF-PROPERTY INVESTIGATION FOR 216 PATERSON PLANK ROAD SITE AND SCIENTIFIC CHEMICAL PROCESSING SUPERFUND SITE

Doc Type: LETTER

	Name	Organization
Author:	FINN, P. STEPHEN	GOLDER ASSOCIATES INC
	Name	**Organization**
Addressee:	PUVOGEL, RICHARD	EPA, REGION 2

Related Document(s):

Region ID: 02
Doc ID: 123884
Bates: R2-0000273 **To:** R2-0000643
Date: 01/22/1997
Pages: 371
Title: OFF-PROPERTY INVESTIGATION INTERIM DATA REPORT FOR THE 216 PATERSON PLANK ROAD SITE AND THE SCIENTIFIC CHEMICAL PROCESSING SUPERFUND SITE
Doc Type: REPORT

	Name	Organization
Author:	,	GOLDER ASSOCIATES INC
	Name	**Organization**
Addressee:	,	216 PATERSON PLANK ROAD COOPERATING PRP GROUP

Related Document(s):

ADMINISTRATIVE RECORD INDEX OF DOCUMENTS

FINAL

08/01/2012 **Region ID: 02**

Site Name: SCIENTIFIC CHEMICAL PROCESSING
CERCLIS: NJD070565403
OUID: 03
SSID: 0265
Action:

Region ID: 02
Doc ID: 123885
Bates: R2-0000644 **To:** R2-0000644
Date: 01/22/1997
Pages: 1
Title: TRANSMITTAL OF THE OFF-PROPERTY INVESTIGATION INTERIM DATA REPORT FORTHE 216 PATERSON PLANK ROAD SITE AND THE SCIENTIFIC CHEMICAL PROCESSING SUPERFUND SITE
Doc Type: LETTER

	Name	Organization
Author:	FINN, P. STEPHEN	GOLDER ASSOCIATES INC
	Name	**Organization**
Addressee:	,	EPA, REGION 2

Related Document(s):

Region ID: 02
Doc ID: 123886
Bates: R2-0000645 **To:** R2-0000675
Date: 06/04/2008
Pages: 31
Title: REMEDIAL ACTION OBJECTIVES AND REMEDIAL ALTERNATIVES FOR OU3 FOR THE 216 PATERSON PLANK ROAD SITE AND THE SCIENTIFIC CHEMICAL PROCESSING SUPERFUND SITE
Doc Type: REPORT

	Name	Organization
Author:	,	GOLDER ASSOCIATES INC
	Name	**Organization**
Addressee:	,	216 PATERSON PLANK ROAD COOPERATING PRP GROUP

Related Document(s):

Region ID: 02
Doc ID: 123887
Bates: R2-0000676 **To:** R2-0000676
Date: 06/04/2008
Pages: 1
Title: TRANSMITTAL OF THE REMEDIAL ACTION OBJECTIVES AND REMEDIAL ALTERNATIVES FOR OU3 FOR THE 216 PATERSON PLANK ROAD SITE AND THE SCIENTIFIC CHEMICAL PROCESSING SUPERFUND SITE
Doc Type: LETTER

	Name	Organization
Author:	FINN, P. STEPHEN	GOLDER ASSOCIATES INC
	Name	**Organization**
Addressee:	VAUGHN, STEPHANIE	EPA

Related Document(s):

Region ID: 02
Doc ID: 123889
Bates: R2-0000677 **To:** R2-0000677
Date: 04/17/2009
Pages: 1
Title: E-MAIL REGARDING OU3 ADDITIONAL GROUNDWATER DELINEATION PLAN FOR THE 216 PATERSON PLANK ROAD SITE AND THE SCIENTIFIC CHEMICAL PROCESSING SUPERFUND SITE
Doc Type: E MAIL MESSAGE

	Name	Organization
Author:	FINN, P. STEPHEN	GOLDER ASSOCIATES INC
	Name	**Organization**
Addressee:	VAUGHN, STEPHANIE	EPA

Related Document(s):

ADMINISTRATIVE RECORD INDEX OF DOCUMENTS

FINAL

08/01/2012 **Region ID: 02**

Site Name: SCIENTIFIC CHEMICAL PROCESSING
CERCLIS: NJD070565403
OUID: 03
SSID: 0265
Action:

Region ID: 02
Doc ID: 123888
Bates: R2-0000678 **To:** R2-0000690
Date: 04/17/2009
Pages: 13
Title: WORK PLAN FOR ADDITIONAL GROUNDWATER DELINEATION FOR THE 216 PATERSON PLANK ROAD SITE AND THE SCIENTIFIC CHEMICAL PROCESSING SUPERFUND SITE
Doc Type: PLAN

	Name	Organization
Author:	,	GOLDER ASSOCIATES INC
	Name	**Organization**
Addressee:	,	EPA, REGION 2

Related Document(s):

Region ID: 02
Doc ID: 123881
Bates: R2-0000691 **To:** R2-0001222
Date: 07/01/2009
Pages: 532
Title: FINAL OFF-PROPERTY GROUNDWATER INVESTIGATION REPORT FOR OU3 FOR THE 216 PATERSON PLANK ROAD SITE AND THE SCIENTIFIC CHEMICAL PROCESSING SUPERFUND SITE
Doc Type: REPORT

	Name	Organization
Author:	,	GOLDER ASSOCIATES INC
	Name	**Organization**
Addressee:	,	216 PATERSON PLANK ROAD COOPERATING PRP GROUP

Related Document(s):

ADMINISTRATIVE RECORD INDEX OF DOCUMENTS

FINAL

08/01/2012 **Region ID: 02**

Site Name: SCIENTIFIC CHEMICAL PROCESSING
CERCLIS: NJD070565403
OUID: 03
SSID: 0265
Action:

Region ID: 02
Doc ID: 123890
Bates: R2-0001223 **To:** R2-0001224
Date: 12/09/2009
Pages: 2
Title: E-MAIL REGARDING OU3 DRILLING FOR THE 216 PATERSON PLANK ROAD SITE AND THE SCIENTIFIC CHEMICAL PROCESSING SUPERFUND SITE
Doc Type: E MAIL MESSAGE

	Name	Organization
Author:	FINN, P. STEPHEN	GOLDER ASSOCIATES INC
	Name	**Organization**
Addressee:	VAUGHN, STEPHANIE	EPA

Related Document(s):

Region ID: 02
Doc ID: 123891
Bates: R2-0001225 **To:** R2-0002477
Date: 09/02/2010
Pages: 1253
Title: FEASIBILITY STUDY PHASE 1 TREATABILITY STUDIES FOR OU3 FOR THE 216 PATERSON PLANK ROAD SITE ANDTHE SCIENTIFIC CHEMICAL PROCESSING SUPERFUND SITE
Doc Type: REPORT

	Name	Organization
Author:	,	GOLDER ASSOCIATES INC
	Name	**Organization**
Addressee:	,	216 PATERSON PLANK ROAD COOPERATING PRP GROUP

Related Document(s):

ADMINISTRATIVE RECORD INDEX OF DOCUMENTS

FINAL

08/01/2012 **Region ID: 02**

Site Name: SCIENTIFIC CHEMICAL PROCESSING
CERCLIS: NJD070565403
OUID: 03
SSID: 0265
Action:

Region ID: 02
Doc ID: 123892
Bates: R2-0002478 **To:** R2-0002478
Date: 09/02/2010
Pages: 1
Title: TRANSMITTAL OF THE FEASIBILITY STUDY PHASE 1 TREATABILITY STUDIES FOR OU3 FOR THE 216 PATERSON PLANK ROAD SITE AND THE SCIENTIFIC CHEMICAL PROCESSING SUPERFUND SITE
Doc Type: LETTER

	Name	Organization
Author:	FINN, P. STEPHEN	GOLDER ASSOCIATES INC
	Name	**Organization**
Addressee:	VAUGHN, STEPHANIE	EPA

Related Document(s):

Region ID: 02
Doc ID: 123880
Bates: R2-0002479 **To:** R2-0002483
Date: 06/21/2012
Pages: 5
Title: CORRESPONDENCE AND COMMENTS REGARDING THE REVISED DRAFT FINAL FOCUSED FEASIBILITY STUDY FOR OU3 FOR THE SCIENTIFIC CHEMICAL PROCESSING SUPERFUND SITE
Doc Type: LETTER

	Name	Organization
Author:	PETERSON, CAROLE	EPA
	Name	**Organization**
Addressee:	FINN, P. STEPHEN	GOLDER ASSOCIATES INC

Related Document(s):

Region ID: 02
Doc ID: 123481
Bates: R2-0002484 **To:** R2-0002698
Date: 07/01/2012
Pages: 215
Title: BASELINE HUMAN HEALTH RISK ASSESSMENT FOR OU3 - OFF PROPERTY GROUNDWATER FOR THE 216 PATERSON PLANK ROAD SITE AND THE SCIENTIFIC CHEMICAL PROCESSING SUPERFUND SITE
Doc Type: REPORT

	Name	Organization
Author:	,	GOLDER ASSOCIATES INC
	Name	**Organization**
Addressee:	,	US ENVIRONMENTAL PROTECTION AGENCY REGION 2

Related Document(s):

Region ID: 02
Doc ID: 123482
Bates: R2-0002699 **To:** R2-0002794
Date: 07/01/2012
Pages: 96
Title: FOCUSED FEASIBILITY STUDY FOR OU3 - OFF PROPERTY GROUNDWATER FOR THE 216 PATERSON PLANK ROAD SITE AND THE SCIENTIFIC CHEMICAL PROCESSING SUPERFUND SITE
Doc Type: REPORT

	Name	Organization
Author:	,	GOLDER ASSOCIATES INC
	Name	**Organization**
Addressee:	,	US ENVIRONMENTAL PROTECTION AGENCY REGION 2

Related Document(s):

ADMINISTRATIVE RECORD INDEX OF DOCUMENTS

FINAL

08/01/2012 **Region ID: 02**

Site Name: SCIENTIFIC CHEMICAL PROCESSING
CERCLIS: NJD070565403
OUID: 03
SSID: 0265
Action:

Region ID: 02
Doc ID: 123495
Bates: R2-0002795 **To:** R2-0002805
Date: 08/01/2012
Pages: 11
Title: PROPOSED PLAN FOR OU3 FOR THE SCIENTIFIC CHEMICAL PROCESSING SITE
Doc Type: PLAN

	Name	Organization
Author:	,	US ENVIRONMENTAL PROTECTION AGENCY

	Name	Organization

Related Document(s):

APPENDIX IV

STATE CONCURRENCE LETTER

State of New Jersey

CHRIS CHRISTIE
Governor

KIM GUADAGNO
Lt. Governor

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BOB MARTIN
Commissioner

September 20, 2012

Mr. Walter Mugdan, Director
Emergency and Remedial Response Division
U.S. Environmental Protection Agency Region II
290 Broadway
New York, NY 10007-1866

Re: Scientific Chemical Processing Superfund Site
Record of Decision for OU3
Carlstadt, Bergen County

Dear Mr. Mugdan:

The New Jersey Department of Environmental Protection (Department) has completed its review of the Record of Decision (ROD) Operable Unit 3 (OU3), that addresses the off-property and deep groundwater, prepared by the U.S. Environmental Protection Agency (EPA) Region II. The Department concurs with the selected remedy, namely Alternative 2 - In-Situ Treatment, Monitored Natural Attenuation, and Institutional Controls.

The selected remedy was chosen in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act, as amended, and, to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan. This decision is based on the Administrative Record file for this site. The response action selected in this Record of Decision (ROD) is necessary to protect the public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment.

The remedy selected to address off-property and deep groundwater contamination employs the use of in-situ treatment technologies and includes the following major components:

- Enhanced anaerobic bioremediation in the Northern Area;
- In-situ chemical oxidation in the Southern area;
- Monitored natural attenuation after treatment;
- Institution controls consisting of a Classification Exception Area and a Well Restriction Area, to limit future use of the groundwater until remediation goals are met.

The selected remedy is protective of human health and the environment, complies with Federal and State requirements that are applicable or relevant and appropriate to the remedial action, is cost effective, and uses permanent solutions and treatment technologies to the maximum extent practicable.

DEP appreciates the opportunity to participate in the decision making process to select an appropriate remedy. If you have any questions, please call me at 609-292-1250.

Sincerely,

David Sweeney
Assistant Commissioner
Site Remediation Program

cc: Gwen Zervas, BCM

APPENDIX V

RESPONSIVENESS SUMMARY

APPENDIX V

RESPONSIVENESS SUMMARY
SCIENTIFIC CHEMICAL PROCESSING SUPERFUND SITE
OPERABLE UNIT 3

INTRODUCTION

This Responsiveness Summary provides a summary of the public=s comments on and concerns with the Proposed Plan to address Operable Unit 3 (OU3) of the Scientific Chemical Processing (SCP) Superfund Site, and the U.S. Environmental Protection Agency=s (EPA=s) responses to these comments and concerns. At the time of the public comment period, EPA proposed a preferred alternative for addressing the off-property and deep groundwater at the Site, which has been designated OU3. All comments summarized in this document have been considered in EPA=s final decision for selection of a remedial alternative for OU3.

This Responsiveness Summary is divided into the following sections:

I. BACKGROUND ON COMMUNITY INVOLVEMENT AND CONCERNS: This section provides the history of community involvement and interests regarding the Site.

II. COMPREHENSIVE SUMMARY OF MAJOR QUESTIONS, COMMENTS, CONCERNS AND RESPONSES: This section contains summaries of oral comments received by EPA at the public meeting, EPA=s responses to these comments, as well as responses to written comments received during the public comment period.

The last section of this Responsiveness Summary includes attachments which document public participation in the remedy selection process for this Site. They are as follows:

Attachment A contains the Proposed Plan that was issued on August 3, 2012 and distributed to the public for review and comment;

Attachment B contains the public notice that appeared in The South Bergenite;

Attachment C contains the transcript of the public meeting; and

Attachment D contains the written comments received by EPA during the public comment period.

I. BACKGROUND ON COMMUNITY INVOLVEMENT AND CONCERNS

Aside from periodic interaction with the adjacent industrial land owners, since the issuance of the OU1 Record of Decision in September 1990, the level of community interest in the SCP Site has been low. EPA and the Potentially Responsible Parties (PRPs) have addressed relatively

minor issues mainly regarding property access for off-site well sampling/installation, general concerns about drinking water quality in the area and issues about Site aesthetics. In response to local concerns, the PRPs planted evergreen shrubbery on the Paterson Plank Road side of the Site, and painted the on-site groundwater temporary storage tank that was used prior to implementation of the OU2 remedy. Since these actions were taken, there have been no major concerns raised by the local community about aesthetics.

OU1 Remedy: The RI/FS Report, the Proposed Plan and other documents which comprise the administrative record of the interim remedy (i.e., OU1) were released to the public on May 19, 1990. These documents were made available to the public at the William E. Dermody Free Library in Carlstadt, New Jersey. On May 19, 1990, EPA also published a notice in the Bergen Record which contained information relevant to the public comment period for the Site, including the duration of the public comment period, the date of the public meeting and availability of the administrative record. The public comment period began on May 19, 1990 and ended on June 18, 1990. In addition, a public meeting was held on June 5, 1990, at which representatives from EPA and the New Jersey Department of Environmental Protection (NJDEP) answered questions regarding the Site and the interim actions under consideration. Responses to the significant comments received during the public comment period are included in the 1990 ROD=s Responsiveness Summary.

OU2 Remedy: The RI/FS Report, Proposed Plan and other documents which comprise the administrative record for the final on-property soil and shallow groundwater remedy (i.e., OU2) were released to the public on August 15, 2001. These documents were also made available to the public at the William E. Dermody Free Public Library. A public notice was published in the Bergen Record on August 15, 2001, advising the public of the availability of the administrative record, the duration of the public comment period, and the date of the public meeting. Due to disruption of mail delivery to EPA=s offices in downtown Manhattan, relating to the events of September 11, 2001, a second public notice was published in the Bergen Record on October 12, 2001 extending the comment period until October 25, 2001. A public meeting, during which EPA presented the preferred remedial alternative for OU2, was held at the Carlstadt Borough Hall, 500 Madison Street, Carlstadt, New Jersey on August 23, 2001. Responses to the significant comments received during the public comment period are included in the August 2002 ROD.

OU3 Remedy: The RI/FS Report, Proposed Plan and other documents which comprise the administrative record for the off-property and deep groundwater remedy (i.e., OU3) were released to the public on August 3, 2012. These documents were also made available to the public at the William E. Dermody Free Public Library in Carlstadt. A public notice was published in the South Bergenite on August 2, 2012, advising the public of the availability of the administrative record, the duration of the public comment period, and the date of the public meeting. The public comment period began on August 3, 2012 and ended on September 4, 2012. A public meeting was held on August 9, 2012, at which representatives from EPA presented the preferred alternative for OU3, was held at the Carlstadt Borough Hall. A summary of the significant comments received during that meeting and during the public comment period are

contained herein.

II. COMPREHENSIVE SUMMARY OF MAJOR QUESTIONS, COMMENTS, CONCERNS, AND RESPONSES

This section summarizes comments received from the public during the public comment period, and EPA=s responses.

A. SUMMARY OF QUESTIONS AND EPA=s RESPONSE FROM THE PUBLIC MEETING CONCERNING THE SCIENTIFIC CHEMICAL PROCESSING SITE, OPERABLE UNIT 3 - AUGUST 9, 2012

A public meeting was held on August 9, 2012 at 7:00 p.m. at the Carlstadt Borough Hall, 500 Madison St., Carlstadt, NJ. EPA and the PRP=s consultant gave a presentation on the investigation findings, the Proposed Plan, and the preferred alternative for the SCP Site.

Comment #1: A commenter questioned the purpose of the remedy, particularly since there is no current exposure to the OU3 contamination and, thus, no risk posed by the Site. He questioned why EPA did not, instead, recommend placement of a Classification Exception Area around the affected area, to restrict future access to groundwater, with monitoring to assure effectiveness, particularly given the Site's location in a commercial/industrial area.

EPA Response: Both the till and bedrock aquifers are designated as Class IIA groundwater by the State of New Jersey, which means they are potential sources of drinking water. As such, the goal is to restore the aquifers so that they can be available as drinking water sources.

Comment #2: A commenter asked whether the primary purpose of the remedy was to accelerate cleanup of the contaminated area, since natural attenuation processes are occurring, or to actually address the source of contamination.

EPA Response: The goal of the remedy is to both address the source of contamination and to accelerate the cleanup of the contaminated area. The proposed in-situ treatment plan will include injection points within the source area, to enhance or cause the breakdown of contaminants of concern, and thus accelerate the overall cleanup of the groundwater.

Comment #3: A commenter asked whether the costs of the proposed remedy were justified, given that natural attenuation is occurring. He wondered whether monitoring, with institutional controls, should be the preferred remedy.

EPA Response: The majority of costs from the proposed remedy actually relate to the monitoring that will need to occur over an estimated 30 years. The upfront capital cost for implementing the active portion of the remedy (i.e., the in-situ treatment) is estimated to be

approximately $1.8 million, while the monitoring costs associated with the remedy are estimated to be closer to $9.4 million. By actively treating the source of contamination, the timeframe to achieve cleanup goals should be shorter than through allowing natural attenuation processes to address the contamination alone, and thus, in the long run, costs may actually be lower for the active remedy.
Further, at least one of the contaminants of concern at the Site, 1,4-dioxane, does not naturally attenuate, and thus, at least some active treatment is required.

Comment #4: A representative of the Borough of Carlstadt, the owner of the former SCP property, asked when the property would be available for use.

EPA Response: Once the Record of Decision is signed, the design of the remedy will be initiated. After the design is complete, or at least well under way, the footprint of the Site that will be required to implement the remedy will be known, and long-term redevelopment plans can be made. Overall, any redevelopment of the Site cannot affect the existing OU2 remedy or the future OU3 remedy. As such, prior to the Site being used in any way, the borough must contact EPA to review its plans. That said, EPA supports appropriate reuse of the Site and will assist the borough as best it can to develop a viable option or options for reuse.

C. WRITTEN COMMENTS RECEIVED DURING THE PUBLIC COMMENT PERIOD FROM THE COMMUNITY AND PRP

Comments and concerns were accepted in writing during the public comment period. One written comment was received in an email from a consulting firm located in Australia. It is addressed in the following part of the Responsiveness Summary.

Comment #5: Mr. Roger Lamb, in his August 8, 2012 email to EPA, asked whether state-of-the-art assessment of volatile organic compounds in 3D, using direct sensing tools, has been performed at the Site. He expressed concern that the in-situ remedy will not be successful without the use of advanced site characterization techniques.

EPA Response: Mr. Lamb's email was forwarded to the PRPs for consideration in their design of the remedy.

ATTACHMENT A

PROPOSED PLAN

Superfund Program
Proposed Plan

U.S. Environmental Protection Agency
Region II

Scientific Chemical Processing Site
August 2012

EPA ANNOUNCES PROPOSED PLAN

This Proposed Plan identifies the U.S. Environmental Protection Agency's (EPA's) Preferred Alternative for addressing off-property and deep groundwater contamination at the Scientific Chemical Processing (SCP) Superfund Site (Site) in the Borough of Carlstadt, New Jersey. The Preferred Alternative for the contaminated groundwater is in-situ treatment, monitored natural attenuation and institutional controls. This Proposed Plan includes summaries of the cleanup alternatives that were evaluated for use at the Site. This document is issued by EPA, the lead agency for the Site, in conjunction with the New Jersey Department of Environmental Protection (NJDEP), the support agency.

EPA is issuing this document as part of its public participation responsibilities under Section 117(a) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (CERCLA), and Section 300.435 (c)(2)(ii) of the NCP. This document summarizes information that can be found in detail in the Administrative Record file for the Site. This Proposed Plan is being provided to inform the public of EPA's preferred remedy, and to solicit public comments pertaining to the preferred alternative. The remedy described in this Proposed Plan is the preferred remedy for the Site. Changes to the preferred remedy, or a change from the preferred remedy to another remedy, may be made if public comments or additional data indicate that such a change will result in a more appropriate remedial action. The final decision regarding the selected remedy will be made after EPA has taken all public comments into consideration. Therefore, the public is encouraged to review and comment on the preferred alternative considered by EPA in this Proposed Plan.

SITE HISTORY

The former SCP property lies at the corner of Paterson Plank Road (Route 120) and Gotham Parkway in Carlstadt, New Jersey. Peach Island Creek, a tributary to Berry's Creek, forms the northeastern border of the property and a trucking company forms the southeastern border (see Figure 1).

The land use in the vicinity of the Site is classified as light industrial by the Borough of Carlstadt. The establishments in the immediate vicinity of the Site include a bank, horse stables, warehouses, freight carriers, and service sector industries. There is a residential area located approximately 1.2 miles northwest of the Site.

MARK YOUR CALENDAR

PUBLIC COMMENT PERIOD:

August 3, 2012 – September 4, 2012

EPA will accept written comments on the Proposed Plan during the public comment period.

PUBLIC MEETING:
August 9, 2012

EPA will hold a public meeting to explain the preferred remedy presented in the Proposed Plan. Oral and written comments will also be accepted at the meeting. The meeting will be held at the Carlstadt Borough Hall, located at 500 Madison Street, Carlstadt, New Jersey at 7:00 p.m.

For more information, see the Administrative Record at the following locations:

EPA Records Center, Region II
290 Broadway, 18th Floor
New York, New York 10007-1866
(212) 637-3261
Hours: Monday - Friday 9:00 am to 5:00 pm

The William E. Dermody Public Library
420 Hackensack Street
Carlstadt, NJ 07072
(201) 438-8866
Hours: Monday - Thursday 10:00 am to 9:00 pm, Friday 10:00 am to 5:00 pm, Saturday 10:00 am to 2:00 pm (closed Saturdays in July and August)

The land on which the former SCP property is located was purchased in 1941 by Patrick Marrone, who used the land for solvent refining and solvent recovery. Mr. Marrone eventually sold the land to a predecessor of Inmar Associates, Inc. Aerial photographs from the 1950s, 1960s and 1970s indicate that drummed materials were stored on the property. On October 31, 1970, the Scientific Chemical Processing Company leased the property from Inmar Associates. SCP used the property for processing industrial wastes from 1971 until the company was shut down by court order in 1980.

While in operation, SCP received liquid byproduct streams from chemical and industrial manufacturing firms, and then processed the materials to reclaim marketable products which were sold to the originating companies. In addition, liquid hydrocarbons were processed to some extent, and then blended with fuel oil. The mixtures were typically sold back to the originating companies or to cement and aggregate kilns as fuel. SCP also received other wastes, including paint sludges, acids and other unknown chemical wastes.

In 1983, the Site was placed on the National Priorities List. Between 1983 and 1985, NJDEP required the property owner to remove approximately 250,000 gallons of wastes stored in tanks which had been abandoned at the Site.

In May 1985, EPA assumed the lead role in the response actions, and issued notice letters to more than 140 Potentially Responsible Parties (PRPs). EPA offered the PRPs an opportunity to perform a Remedial Investigation and Feasibility Study (RI/FS) for the Site, and in September 1985, EPA issued an Administrative Order on Consent to the 108 PRPs who had agreed to conduct the RI/FS. Subsequently, in October 1985, EPA issued a Unilateral Order to 31 PRPs who failed to sign the Consent Order. The Unilateral Order required the 31 PRPs to cooperate with the 108 consenting PRPs on the RI/FS. In the fall of 1985, EPA also issued an Administrative Order to Inmar Associates, requiring the company to remove and properly dispose of the contents of five tanks containing wastes contaminated with Polychlorinated Biphenyls (PCBs) and numerous other hazardous substances.

Inmar removed four of the five tanks remaining on the property in 1986. The fifth tank was not removed at the time because it contained high levels of PCBs and other contaminants, and disposal facilities capable of handling those wastes were not available at that time. The fifth tank and its contents were subsequently removed by the PRPs in February 1998 and disposed of at an EPA-approved off-site facility.

The PRPs initiated the RI/FS in April 1987, and it was completed in March 1990. The RI focused on the most heavily contaminated zone at the Site, which included the contaminated soil, sludge, and shallow groundwater within the SCP property, down to the clay layer (hereinafter, this zone will be referred to as the "Fill Area"). The RI also included data from the deeper groundwater areas, both on and off the SCP property. The deeper areas consist of the till aquifer, which lies just under the Fill Area's clay layer, and the bedrock aquifer, which underlies the till aquifer. Groundwater within both the till and bedrock aquifer was found to be contaminated with site-related compounds. The RI also found that the adjacent Peach Island Creek's surface water and sediments were impacted by contaminants similar to those found in the Fill Area.

The FS indicated that, although there seemed to be several potential methods or combinations of methods to remedy the Fill Area, there were uncertainties regarding the relative effectiveness of the various technologies. Consequently, EPA made a decision that treatment alternatives needed further assessment. In the meantime, however, measures were needed to contain and prevent exposure to the Fill Area contaminants. As such, an interim remedy for the on-property soil and shallow groundwater was selected in a September 1990 Record of Decision (ROD).

EPA typically addresses sites in separate phases and/or operable units. In developing an overall strategy for the Site, EPA has identified the interim Fill Area remedy as Operable Unit 1 (OU1), the final Fill Area remedy as OU2, and the off-property and deep groundwater remedy, which is the subject of this Proposed Plan, as OU3. Contamination in the adjacent Peach Island Creek will be addressed as part of another superfund site, Berry's Creek. Peach Island Creek is a tributary to Berry's Creek.

Interim Remedy: Soil and Shallow Groundwater on Property (OU1)

The goals of the interim remedy selected for OU1 were to prevent exposure to contaminated soil and sludge in the Fill Area and to prevent the contaminated groundwater within the Fill Area from migrating off-property. The interim remedy was constructed from August 1991 through June 1992 by the PRPs for the Site, with EPA oversight, pursuant to a Unilateral

Administrative Order dated September 28, 1990, and consisted of the following:

- A lateral containment wall comprised of a soil-bentonite slurry with an integral high density polyethylene (HDPE) vertical membrane surrounds the Fill Area and is keyed into the clay layer;
- A sheet pile retaining wall along Peach Island Creek;
- An HDPE horizontal infiltration barrier covering the property;
- An extraction system for shallow groundwater within the containment area with discharge to an above-ground storage tank for off-site disposal;
- A chain link fence around the property to restrict access; and
- Regular groundwater sampling, plus monitoring of the interim remedy to assure it remained effective until a final remedy was selected.

Final Remedy: Soil and Shallow Groundwater on Property (OU2)

While implementing the OU1 remedy, EPA continued to oversee additional RI/FS work which would provide information to select a final remedy for the Fill Area, as well as a remedy for the deep and off-property groundwater. A ROD selecting the Final Remedy for the Fill Area (OU2) was signed in August 2002. The major elements of the selected remedy included:

- Treatment of a Hot Spot area of contamination to reduce concentrations of volatile organic compounds, followed by soil stabilization of the area using cement and lime. If the treatment did not prove effective, the ROD specified that excavation of the Hot Spot area, with off-site disposal, would occur;
- Installation of a 2-foot thick "double containment" cover system over the entire Fill Area;
- Improvement of the existing, interim groundwater recovery system; and
- Improvement of the existing sheet pile wall along Peach Island Creek.

The OU2 remedy was implemented by the PRPs, with EPA oversight, pursuant to a Consent Decree entered in September 2004. Design of the remedy was completed in June 2007 and construction of the remedy was initiated in April 2008. Performance standards for the treatment and stabilization of the Hot Spot area of contamination were not met. As such, sludge and soil from the area was excavated and disposed of at an EPA-approved off-site disposal facility.

Implementation of the OU2 remedy was completed in October 2011. The groundwater recovery system is operating and regular maintenance is being conducted.

Off-Property and Deep Groundwater (OU3)

OU3 includes groundwater located outside of the boundaries of the former SCP property, as well as groundwater beneath the property, but deeper than the limits of the OU2 remedy (i.e., below the clay layer, in the till and bedrock aquifers). Investigation of OU3 groundwater has been ongoing since the initiation the RI for the Site in 1987. An Interim Data Report was submitted by the PRPs in 1997, and an Off-Property Groundwater Investigation Report was submitted in May 2003.

After reviewing the May 2003 report, EPA determined that additional investigation was needed to further define the nature and extent of groundwater contamination in the till and bedrock aquifers. The scope of the additional investigation was agreed to at a meeting with EPA in November 2006, and the associated fieldwork was conducted between March and July 2007. The Final Off-Property Groundwater Investigation Report for Operable Unit 3 (the Final RI for OU3) was submitted by the PRPs in July 2009.

A remedial action objectives and remedial alternatives (RAO/RA) report, identifying a preliminary list of remedial technologies for OU3, was submitted to EPA by the PRPs in June 2008. The RAO/RA report also proposed that bench and, possibly, pilot-scale studies be conducted to test the efficacy of certain remedial technologies for use at this Site.

Additional groundwater investigations were performed in advance of the bench and pilot-scale treatability studies that were conducted to support the OU3 FS. This additional investigation work was conducted in December 2009 and January 2010 in accordance with a work plan for additional groundwater delineation submitted by the PRPs in April 2009. The results were reported in an OU3 FS Phase 1 Treatability Studies

report dated September 2010, which proposed further delineation activities and provided a work plan for an enhanced anaerobic bioremediation pilot test that is ongoing at the Site.

The OU3 RI/FS was completed in July 2012. The results of the OU3 RI are summarized below, and form the basis for the development of the FS report. Both documents, as well as the OU3 Human Health Risk Assessment, can be found in the Administrative Record for the Site.

SITE CHARACTERISTICS

The stratigraphy at the Site consists of the following layers:

- Man made fill (3 to 10 feet thick)
- Marine and marsh "meadow mat" (0 to 4 feet thick)
- Glaciolacustrine varved clay unit, including an upper stiff bedded unit and a lower soft plastic unit (0 to 20 feet thick)
- Glacial till, including a soft upper unit (0 to 17 feet thick) and an over-consolidated lower lodgement till (0 to 30 feet thick)
- Passaic Formation bedrock consisting of siltstones and mudstones with occasional interbeds of sandstones.

The geologic layers that are most relevant to OU3 include the glaciolacustrine varved material, which serves as a confining layer, and the underlying glacial till and bedrock aquifers, which are designated as Class IIA groundwater by the State of New Jersey, which means they are potential sources of drinking water. However, no wells in the affected area are used for potable water purposes.

Groundwater generally flows to the north from the property. However, the flow direction and water levels are significantly influenced by the presence of several extraction wells in the vicinity, used for non-residential, non-potable water purposes, which operate during the week and then sit idle during the weekend. During the weekend, flows can actually reverse direction and head south, away from the property, or more generally can flow towards the northwest.

Sampling Results

The results of the RI are summarized in the final report dated July 2009. Additional sampling conducted since that time has been incorporated into the FS for OU3.

The primary contaminants of concern in groundwater at the Site include Volatile Organic Compounds (VOCs), predominantly tetrachloroethene (PCE), trichloroethene (TCE), cis-1,2-dichloroethene (DCE), and vinyl chloride, localized areas of aromatic hydrocarbons, including benzene, toluene, ethylbenzene, and xylenes, and 1,4-dioxane.

There are two distinct areas of contamination in the OU3 groundwater. They are described separately below.

Northern Area Contamination

The primary contaminants of concern in the northern area are the VOCs mentioned above. Concentrations decrease substantially with increasing horizontal and vertical distance from the former SCP property. For example, the highest concentrations of total VOCs in the bedrock, approximately 3,000 parts per billion (ppb), were found in Monitoring Well -13R (MW-13R), which is located adjacent to the northwest corner of the former SCP property. Total VOC concentrations decrease to trace levels in the bedrock just 600 to 1,000 feet away horizontally. Concentrations also decline vertically, with only trace VOC concentrations detected in MW-23R, located adjacent to but deeper than MW-13R.

Similarly, the highest concentration of total VOCs detected in the till wells was approximately 5,500 ppb in MW-5D, which is located in the northwest corner of the property, and draws water from beneath the OU2 containment remedy. Concentrations in the till aquifer decline to 718 ppb in MW-20D, located approximately 500 feet north of the property, to 5 ppb in MW-26D, located approximately 950 feet north of the property. Total VOC concentrations also decline to 51 ppb in MW-25D, approximately 1,000 feet northwest of the property.

Southern Area Contamination

The primary contaminant of concern that defines the contamination to the south of the property is 1,4-dioxane, though other contaminants, including benzene and 1,1-dichloroethane, are also present at elevated concentrations. 1,4-dioxane has been detected in groundwater in the southern area at concentrations ranging from 5 ppb to 6,300 ppb. The highest concentrations were observed in the soft till, and were an order of magnitude higher than in groundwater samples collected in the deeper, lodgement till.

1,4-dioxane does not appear to be present above concentrations of concern in the bedrock aquifer.

SCOPE AND ROLE OF THIS ACTION

As stated previously, EPA is addressing this Site in three operable units, two of which have already been implemented. OU1 provided an interim infiltration barrier, slurry wall, groundwater collection system, and off-site disposal of contaminated groundwater. OU2 improved upon and made permanent the OU1 remedy. It constituted the final remedy for the Fill Area of the Site. OU3, the final operable unit and the subject of this Proposed Plan, addresses contaminated groundwater in the deeper aquifers where contamination extends off-property and under the OU2 containment area. The Remedial Action Objectives for OU3 are to prevent unacceptable exposures to impacted groundwater, control future migration of contaminants of concern in the groundwater, and restore groundwater quality to regulatory or risk-based concentrations.

SUMMARY OF OPERABLE UNIT 3 RISKS

The purpose of a human health risk assessment is to identify potential cancer risks and non-cancer health hazards at a site assuming that no further remedial action is taken. A baseline human health risk assessment (BHHRA) was performed to evaluate current and future cancer risks and non-cancer health hazards based on the results of the RI.

An ecological risk assessment was determined to be unnecessary for OU3. The OU2 remedy specified that ecological risks would be addressed as part of the OU3 remedy. However, at that time, Peach Island Creek was to be addressed as part of the Site. However, contamination in the creek, and any associated ecological risks, will now be addressed as part of the Berry's Creek site.

Human Health Risk Assessment

As part of the RI, a BHHRA was conducted to estimate the risks and hazards associated with the current and future effects of contaminants on human health. A BHHRA is an analysis of the potential adverse human health effects caused by hazardous substance exposure in the absence of any actions to control or mitigate exposure under current and future land uses. The BHHRA for OU3 considered exposure to Chemicals of Potential Concern (COPCs) in the bedrock and till groundwater aquifers assuming no remediation and no institutional controls.

WHAT IS RISK AND HOW IS IT CALCULATED?

A Superfund baseline human health risk assessment is an analysis of the potential adverse health effects caused by hazardous substance releases from a site in the absence of any actions to control or mitigate these under current and future land uses. A four-step process is utilized for assessing site-related human health risks for reasonable maximum exposure scenarios.

Hazard Identification: In this step, the contaminants of concern at the site in various media (i.e., soil, groundwater, surface water, and air) are identified based on such factors as toxicity, frequency of occurrence, fate and transport of the contaminants in the environment, concentrations of the contaminants in specific media, mobility, persistence, and bioaccumulation.

Exposure Assessment: In this step, the different exposure pathways through which people might be exposed to the contaminants identified in the previous step are evaluated. Examples of exposure pathways for a groundwater site include ingestion of groundwater and inhalation of volatiles while showering. Factors relating to the exposure assessment include, but are not limited to, the concentrations that people might be exposed to and the potential frequency and duration of exposure. Using these factors, a "reasonable maximum exposure" scenario, which portrays the highest level of human exposure that could reasonably be expected to occur, is calculated.

Toxicity Assessment: In this step, the types of adverse health effects associated with chemical exposures, and the relationship between magnitude of exposure (dose) and severity of adverse effects (response) are determined. Potential health effects are chemical- specific and may include the risk of developing cancer over a lifetime or other non-cancer health effects, such as changes in the normal functions of organs within the body (e.g., changes in the effectiveness of the immune system). Some chemicals are capable of causing both cancer and non-cancer health effects.

Risk Characterization: This step summarizes and combines exposure information and toxicity assessments to provide a quantitative assessment of site risks. Exposures are evaluated based on the potential risk for developing cancer and the potential for non-cancer health hazards. The likelihood of an individual developing cancer is expressed as a probability. For example, a 10^{-4} cancer risk means a "one in ten thousand excess cancer risk"; or one additional cancer may be seen in a population of 10,000 people as a result of exposure to site contaminants under the conditions explained in the exposure assessment. Current federal Superfund guidelines for acceptable exposures are an individual lifetime excess cancer risk in the range of 10^{-4} to 10^{-6} (corresponding to a one-in-ten-thousand to a one-in-a-million excess cancer risk). For non-cancer health effects, a "hazard index" (HI) is calculated. An HI represents the sum of the individual exposure levels compared to their corresponding Reference Doses. The key concept for a non-cancer HI is that a "threshold level" (measured as an HI of 1) exists below which non-cancer health effects are not expected to occur.

A four-step human health risk assessment process was used for assessing site-related cancer risks and non-cancer health hazards. The four-step process is comprised of: Hazard Identification of COPCs, Exposure Assessment, Toxicity Assessment, and Risk Characterization (see "What Is Risk and How Is It Calculated" box on previous page).

The current/future land use scenarios evaluated in the BHHRA included the following exposure pathways and receptors:

- Adult/Child Residents: ingestion of, dermal contact with, and inhalation of vapors from OU3 groundwater.
- Industrial Workers: ingestion of and dermal contact with OU3 groundwater.

There are currently no known exposures to OU3 groundwater, and it is not used a potable source, so the BHHRA focused on future risk conditions.

Exposure point concentrations in groundwater were estimated using either the maximum detected concentration of a contaminant or the 95%, 97.5% or 99% upper-confidence limit (UCL) of the average concentration. Chronic daily intakes were calculated based on the reasonable maximum exposure (RME), which is the highest exposure reasonably anticipated to occur at the Site. The RME is intended to represent a conservative exposure scenario that is still within the range of possible exposures. Central tendency exposure (CTE) assumptions, which represent typical, average exposures, were also developed. A complete summary of all exposure scenarios can be found in the BHHRA.

Summary of Risks to Future Residents

The carcinogenic risk calculated for future adult residents under RME conditions was $3x10^{-3}$ (three in 1;000), which exceeds the acceptable risk range of 10^{-4} (one in 10,000) to 10^{-6} (one in 1,000,000). The risk is due primarily to ingestion of 1,4-dioxane (77%) and TCE (13%) in the groundwater. The total estimated adult cancer risk calculated using CTE assumptions was $4x10^{-4}$ (4 in 10,000), which is within the upper bounds of the acceptable risk range.

The carcinogenic risk calculated for future child residents under RME conditions was $2x10^{-3}$ (2 in 1,000), which is due primarily to the ingestion of 1,4-dioxane (45%) and TCE (41%) in the groundwater. The total estimated future child cancer risk under CTE conditions was calculated to be $1x10^{-3}$ (one in 1,000), which still exceeds the risk range.

The non-cancer Hazard Index (HI) calculated for future adult residents was 54 under RME conditions and 25 under CTE conditions. Both of these exceed the goal of protection of an HI of less than 1. The primary COPCs in groundwater contributing to the total HI are 1,4-dioxane, TCE and cis-1,2-dichloroethene.

For future child residents, the total HI was calculated to be 125 under RME conditions and 63 under CTE conditions, due primarily to ingestion of 1,4-dioxane,cis-1,2-dichloroethene, TCE and PCE in groundwater. Again, the overall HI is greater than the goal of protection of an HI of less than 1 for both the RME and CTE exposures.

An evaluation of cancer risks and non-cancer hazards associated with showering were found to be below the cancer risk range and an HI of 1 for potential future residents.

Summary of Risks to Industrial Workers

Under future exposure conditions, the sum of all RME cancer risks for the adult industrial/commercial worker was calculated to be $9x10^{-4}$ (9 in 10,000), which exceeds the acceptable risk range. Estimated risks are primarily driven by ingestion of 1,4-dioxane (78%) and TCE (13%) in groundwater. The total estimated cancer risk under CTE conditions was calculated to be $4x10^{-4}$ (4 in 10,000), which is within the upper bounds of the acceptable risk range.

The total estimated non-cancer HI for future industrial/ commercial workers was calculated to be 19 under RME conditions and 10 under CTE conditions, due primarily by the ingestion of TCE in groundwater. The overall HI is greater than the goal of protection of an HI of less than 1 under both RME and CTE exposure conditions.

Summary

The results of the BHHRA indicate that action is necessary to reduce the risks associated with contamination in the OU3 groundwater. In addition, it is EPA's judgment that the Preferred Alternative identified in this Proposed Plan is necessary to protect public health or welfare from actual or threatened releases of hazardous substances into the environment.

REMEDIAL ACTION OBJECTIVES

Based on the human health risk assessment, the primary contaminants of concern in the deep and off-property groundwater are VOCs, aromatic hydrocarbons, and 1,4-dioxane. There are no current completed exposure pathways to OU3 groundwater, but future exposure pathways are associated with potential groundwater extraction and use via ingestion, inhalation and dermal contact routes. The vapor intrusion pathway is not a concern due to the depth of the OU3 groundwater. The relatively clean shallow groundwater (5 to 10 feet below ground surface) would effectively block the potential migration of volatile contaminants from the deeper groundwater (more than 30 feet below ground surface) to the surface.

The following remedial action objectives address the human health risks and environmental concerns posed at the Site:

- Prevent unacceptable exposures to impacted groundwater;
- Control future migration of contaminants of concern in the groundwater; and
- Restore groundwater quality to the lower of the federal drinking water standards or the New Jersey Groundwater Quality Standards (NJGWQSs).

The cleanup of the Site is based on remediating the contaminated groundwater to within EPA's acceptable cancer risk range for a reasonable maximum exposure if the groundwater were utilized in the future for residential purposes. The cleanup goals also have to be consistent with federal drinking water standards and NJGWQSs. The Preliminary Remediation Goals proposed by EPA for the contaminants of potential concern for OU3 are based on the NJGWQSs, and are consistent with federal and state guidance.

SUMMARY OF REMEDIAL ALTERNATIVES

Remedial alternatives for the off-property groundwater are presented below. Potential applicable technologies were initially identified and screened using effectiveness, implementability, and cost as criteria, with an emphasis on the effectiveness of the alternative. Those technologies that passed the initial screening were then assembled into three remedial alternatives which were fully evaluated in the FS.

The time frames below for construction do not include the time to design the remedy or to procure necessary contracts. Because each of the action alternatives are expected to take longer than five years, a Site review will be conducted every five years (Five-Year Review) until remedial goals are achieved.

Alternative 1 – No Action

Regulations governing the Superfund program require that the "no action" alternative be evaluated generally to establish a baseline for comparison. Under this alternative, EPA would take no action at the Site to prevent exposure to the groundwater contamination.

Total Capital Cost	$0
Total Operation and Maintenance	$0
Total Present Worth Cost	$0
Estimated Timeframe	None

Alternative 2 – In-Situ Treatment, Monitored Natural Attenuation, and Institutional Controls

Total Capital Cost	$1,772,439
Total Operation and Maintenance	$9,410,460
Total Present Worth Cost	$7,830,000
Estimated Timeframe	30 years

This alternative would treat the contamination in the groundwater directly, through the injection of a substance, or substances, designed to cause or enhance the breakdown of the contaminants of concern to less toxic forms.

As described above, there are two distinct areas of contamination for OU3. A bench-scale test was conducted on the southern portion of the plume and a long-term, pilot-scale test is nearing completion in the northern portion of the plume. Both tests indicate that in-situ treatment technologies can effectively remediate the contamination that is present in the OU3 groundwater.

Based on the test results, it is anticipated at this time that enhanced anaerobic bioremediation (EAB) would be utilized to treat the contaminants in the northern portion of the plume and that in-situ chemical oxidation (ISCO) would be used on the southern portion. To arrive at the cost estimates provided above, the following assumptions were made in the FS:

Northern Area

- Treatment using EAB through the injection of lactate into the till aquifer;
- 51 injection wells were assumed, with 9 to be located on-property and the rest located off of the former SCP property; and

- Off-property injections of lactate were assumed to occur quarterly for 5 years, while on-property injections were assumed to continue for up to 30 years.

Southern Area

- Based on the bench-scale tests that were conducted, treatment using ISCO through the injection of a combination of sodium persulfate and sodium hydroxide into the aquifer;
- 20 injection wells were assumed, with 7 to be located on-property and the rest off of the property; and
- A total of 3 injections were assumed, over a period of 3 to 5 years.

The details of the in-situ treatment technology to be used in each area, including the substances to be injected, the number of injection points, the extent of the treatment zone, and the timeframes for treatment, would be refined during the remedial design, and may change significantly based on the final results of the pilot study and results from the pre-design investigation. However, the use of an in-situ treatment technology or technologies is expected to remain an appropriate remedy for OU3.

After the initial treatment period, monitored natural attenuation (MNA) would be used to complete the remediation of OU3 groundwater. MNA addresses contaminated groundwater through ongoing natural attenuation processes accompanied by verification monitoring. By EPA's definition, MNA utilizes natural in-situ processes to reduce the mass, toxicity, mobility, volume, and/or concentration of chemicals through biodegradation, dispersion, dilution, sorption, volatilization, and/or chemical or biological stabilization, transformation, or destruction of contaminants. The primary in-situ process contributing to the ongoing natural attenuation that has been documented for the contaminants present in OU3 is biodegradation (i.e., the natural breakdown of chemicals through biological processes). Multiple lines of evidence exist which show that natural attenuation processes are occurring.

Institutional controls would also be part of this alternative. A deed notice is already in place which restricts the placement of groundwater wells on the former SCP property itself. In addition, a Classification Exception Area/Well Restriction Area (CEA/WRA) would be established to prevent the installation of wells within the affected area until the remediation is complete.

Alternative 3 – Groundwater Extraction and Treatment, Monitored Natural Attenuation, and Institutional Controls

Total Capital Cost	$1,972,573
Total Operation and Maintenance	$15,747,600
Total Present Worth Cost	$11,140,000
Estimated Timeframe	30 years

In this alternative, contaminated groundwater from OU3 would be extracted, treated on-site, and then disposed of off-site. Detailed modeling would need to be conducted during the design to determine, for example, where to place the extraction wells, how many to place, and how to treat the contaminated water. However, to arrive at the cost estimates above, it was assumed that five extraction wells screened in the till unit to just above bedrock would be needed. Three would be located in the northern area and two would be placed in the southern area. All wells were assumed to pump at a rate of two gallons per minute.

Separate processes would be needed to treat the water contaminated with 1,4-dioxane from the water contaminated with other VOCs only, since 1,4-dioxane is both much more soluble in water and does not adsorb as readily to carbon as the other VOCs present in the groundwater. Disposal of the water would be either directly to a surface water body or to a publicly operated treatment facility.

As with Alternative 2, MNA would be used to address contamination outside of the extraction zone, which would be refined during the remedial design, and institutional controls would be used to assure that the alternative remains protective while the remediation is being completed.

EVALUATION OF ALTERNATIVES

EPA uses nine evaluation criteria to assess remedial alternatives individually and against each other in order to select a remedy. The criteria are described in the box on the next page. This section of the Proposed Plan profiles the relative performance of each alternative against the nine criteria, noting how it compares to the other options under consideration. A detailed analysis of each of the alternatives is in the FS report. A summary of those analyses follows.

Overall Protectiveness of Human Health and the Environment

Alternative 1 (no action) would not provide protection of human health and the environment in the long term, since contamination would persist in the groundwater. Alternative 2 (in-situ treatment) and Alternative 3 (ex-situ treatment) would eliminate risk through treatment or removal of the contaminated groundwater in the long term, and would be protective in the short term through the placement of institutional controls. Both would comply with the RAOs.

Since Alternative 1 is not protective of human health and the environment, it is eliminated from consideration under the remaining eight criteria.

Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)

Alternatives 2 and 3 will comply with ARARs over time. Both would comply with chemical-specific ARARs through either treatment or removal of contaminated groundwater, though Alternative 2 would likely achieve chemical-specific ARARs faster than Alternative 3. Similarly, both alternatives would meet action-specific ARARs, though due to the need for disposal of treated groundwater, it would be much more difficult for Alternative 3 to meet them.

Long-Term Effectiveness and Permanence

Both alternatives would provide long-term effectiveness and permanence, since under both alternatives the impacted groundwater would either be treated or removed. Both would require long-term monitoring until ARARs are achieved, though Alternative 3 would likely require a longer active treatment time.

Reduction of Toxicity, Mobility, or Volume through Treatment

Alternative 2 would reduce the toxicity, mobility, and volume of contaminants in the groundwater through treatment. The treatment would degrade contaminants to less-toxic forms, thereby reducing both toxicity and volume, and would reduce mobility through direct source control. Alternative 3 would reduce both the mobility and volume of contaminants in the groundwater, but would not enhance the reduction of toxicity in-situ that is already occurring through natural attenuation processes.

THE NINE SUPERFUND EVALUATION CRITERIA

Overall Protectiveness of Human Health and the Environment determines whether an alternative eliminates, reduces, or controls threats to public health and the environment through institutional controls, engineering controls, or treatment.

Compliance with ARARs evaluates whether the alternative meets Federal and State environmental statutes, regulations, and other requirements that pertain to the site, or whether a waiver is justified.

Long-term Effectiveness and Permanence considers the ability of an alternative to maintain protection of human health and the environment over time.

Reduction of Toxicity, Mobility, or Volume of Contaminants through Treatment evaluates an alternative's use of treatment to reduce the harmful effects of principal contaminants, their ability to move in the environment, and the amount of contamination present.

Short-term Effectiveness considers the length of time needed to implement an alternative and the risks the alternative poses to workers, residents, and the environment during implementation.

Implementability considers the technical and administrative feasibility of implementing the alternative, including factors such as the relative availability of goods and services.

Cost includes estimated capital and annual operations and maintenance costs, as well as present worth cost. Present worth cost is the total cost of an alternative over time in terms of today's dollar value. Cost estimates are expected to be accurate within a range of +50 to -30 percent.

State/Support Agency Acceptance considers whether the State agrees with the EPA's analyses and recommendations, as described in the RI/FS and Proposed Plan.

Community Acceptance considers whether the local community agrees with EPA's analyses and preferred alternative. Comments received on the Proposed Plan are an important indicator of community acceptance.

Short-Term Effectiveness

Both alternatives would have some impact to the community during pre-design investigations. The impacts to the community posed by Alternative 2 would be low. Periodic access to some properties would be needed to complete injections during the active treatment period and during the long-term monitoring of wells. Alternative 3 would have a much greater impact on the community due to the need to construct a treatment plant and a groundwater extraction and discharge system. Since a conveyance system to carry the water from the extraction wells to

the treatment system would need to be installed, including along roadways and utility corridors, construction of the system would impact both public and private properties

Implementability

Alternative 2 is readily implementable. The materials needed are generally available and only limited access will be needed to properties near the Site. Alternative 3 is also implementable, but it would pose a greater challenge to implement than Alternative 2. While the materials needed should be readily available, more invasive access will be needed to properties to install pipelines and extraction wells.

Cost

Alternative 3 has a slightly higher capital cost than Alternative 2 due to the need to construct a groundwater extraction and treatment facility. Alternative 3 also has a significantly higher operations and maintenance cost than Alternative 2.

State/Support Agency Acceptance

The State of New Jersey agrees with the preferred alternative in this Proposed Plan.

Community Acceptance

Community acceptance of the preferred alternative will be evaluated after the public comment period ends and will be described in the ROD for the Site.

SUMMARY OF THE PREFERRED ALTERNATIVE

The Preferred Alternative for cleanup of the OU3 groundwater at the SCP Site in Carlstadt, New Jersey is Alternative 2, In-Situ Treatment, Monitored Natural Attenuation, and Institutional Controls.

In-situ treatment of various contaminants has worked successfully at other sites, and results of bench-scale and pilot-scale tests conducted at this Site indicate that in-situ treatment options should be available to effectively treat the contamination present at this Site. As part of the remedy, monitored natural attenuation will be conducted during and after treatment and institutional controls will be maintained to assure the remedy remains protective until cleanup goals are met.

EPA believes the Preferred Alternative will be protective of human health and the environment, will comply with ARARs, will be cost effective, and will utilize permanent solutions and alternative treatment technologies to the maximum extent practicable. Through the use of an in-situ treatment technology to treat the groundwater, the Selected Remedy meets the statutory preference for the use of remedies that employ treatment that reduces toxicity, mobility or volume as a principal element to address the principal threats at the Site. The Preferred Alternative can change in response to public comment or new information.

Consistent with EPA Region 2's *Clean and Green* policy, EPA will evaluate the use of sustainable technologies and practices with respect to any remedial alternative selected for the Site.

As is EPA's policy, Five-Year Reviews will be conducted until remediation goals are achieved and the Site is available for unrestricted use and unlimited exposure.

COMMUNITY PARTICIPATION

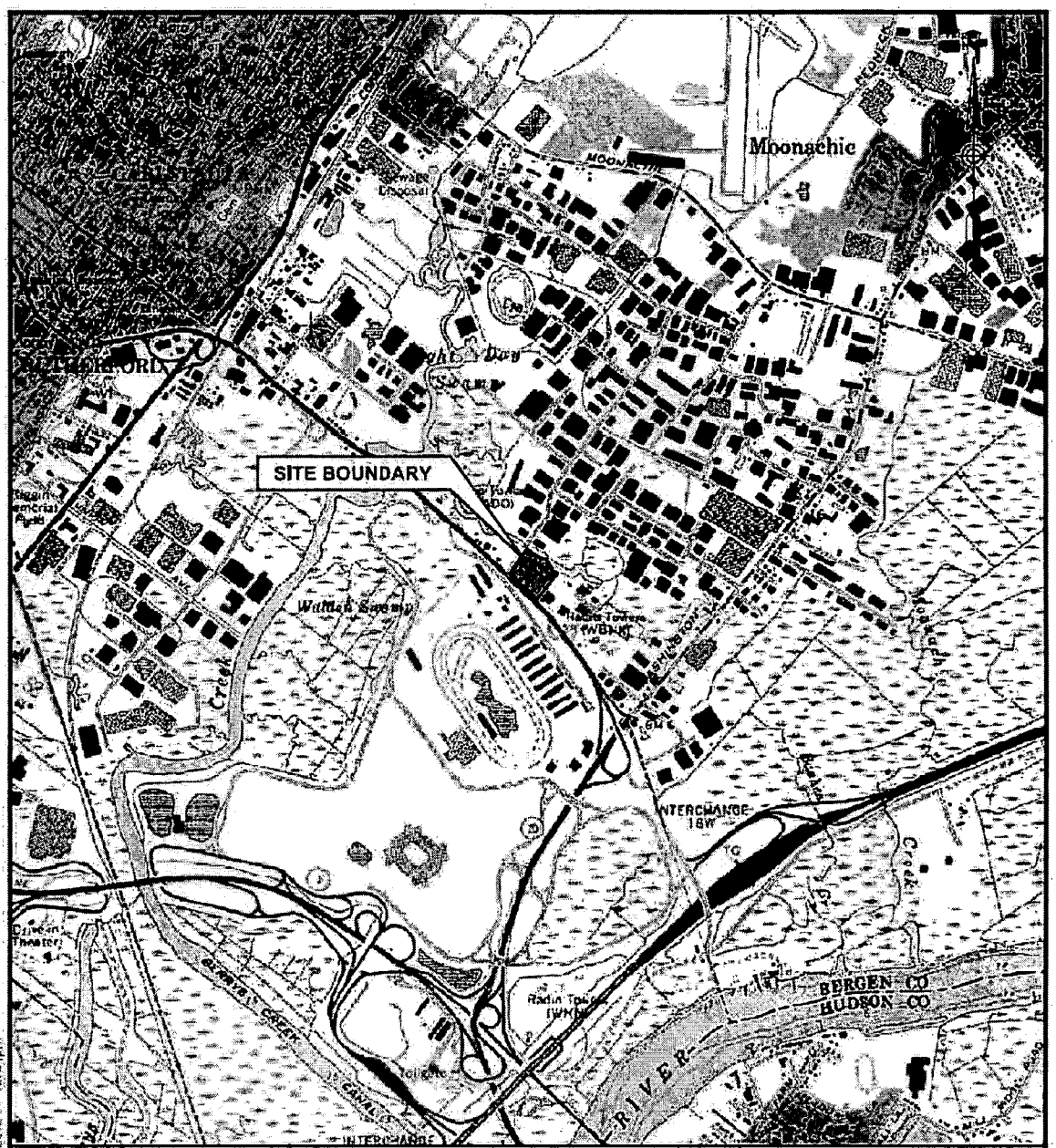
EPA provides information regarding the cleanup of the SCP Superfund Site to the public through public meetings, the Administrative Record file for the Site, and announcements published in the South Bergenite newspaper. EPA and NJDEP encourage the public to gain a more comprehensive understanding of the Site and the Superfund activities that have been conducted there.

The dates for the public comment period, the date, location and time of the public meeting, and the locations of the Administrative Record files, are provided on the front page of this Proposed Plan.

For further information on the SCP site, please contact:

Stephanie Vaughn Remedial Project Manager (212) 637-3914 vaughn.stephanie@epa.gov	Pat Seppi Community Relations Coordinator (212) 637-3679 seppi.pat@epa.gov

U.S. EPA
290 Broadway, 19th Floor
New York, New York 10007-1866



REFERENCES

1.) BASE MAP TAKEN FROM U.S.G.S. 7.5 MINUTE QUADRANGLE OF WEEHAWKEN, NEW JERSEY, DATED 1967 AND PHOTOREVISED 1981.

2000 0 2000
APPROXIMATE SCALE FEET

Golder Associates
Mt. Laurel, New Jersey

SCALE	AS SHOWN
DATE	05/04/12
DESIGN	HAL
CADD	AM
CHECK	HAL
REVIEW	PSF
FILE No.	9436222V018
PROJECT No.	943-6222
REV.	0

TITLE

SITE LOCATION MAP

216 PATERSON PLANK ROAD SITE

FIGURE 1

Drawing file: 9436222V015.dwg May 04, 2012 - 12:04pm

ATTACHMENT B

PUBLIC NOTICE

EPA INVITES PUBLIC COMMENT ON A PROPOSED PLAN TO CLEAN UP THE SCIENTIFIC CHEMICAL PROCESSING SUPERFUND SITE IN CARLSTADT, NEW JERSEY

The U.S. Environmental Protection Agency announces the opening of a 30-day public comment period on a cleanup proposal to address on- site and off-site ground water contamination associated with the Scientific Chemical Processing Superfund site in Carlstadt.

Public comment on the preferred cleanup plan, and other cleanup alternatives that were considered, begins on August 2, 2012 and ends on September 4, 2012. The EPA encourages the public to attend a public meeting on Thursday, August 9, 2012 at 7:00 p.m.at the Carlstadt Borough Hall, 500 Madison Street, Carlstadt, N.J.

The Proposed Plan is available at http://www.epa.gov/region02/superfund/npl/scientificchemical or by calling Pat Seppi, EPA's Community Involvement Coordinator, at (212) 637-3679 and requesting a copy by mail.

Written comments on the Proposed Plan, postmarked no later than September 4, 2012, may be mailed to Stephanie Vaughn, EPA Project Manager, at U.S. EPA, 290 Broadway, 19th Floor, ATTN: Stephanie Vaughn, New York, NY 10007-1866.or emailed no later than September 4, 2012 to vaughn.stephanie@epa.gov,

The Administrative Record file, containing the documents used or relied on in developing the alternatives and preferred cleanup plan, is available for public review at the following information repositories:

Carlstadt Borough Hall, 500 Madison Street, Carlstadt, N.J.

U.S. EPA Region 2, Superfund Records Center, 290 Broadway, 18th Floor, New York, NY 10007-1866 (212) 637-4308, Mon. - Fri., 9am - 5pm

ATTACHMENT C

TRANSCRIPT OF PUBLIC MEETING

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
STATE OF NEW JERSEY
COUNTY OF BERGEN
BOROUGH OF CARLSTADT

In the Matter of

Public Comment on the Proposed Plan for the Scientific Chemical Processing Superfund Site, Cardstadt, Bergen County, New Jersey

---

Proceedings in the above-captioned matter held at the Carlstadt Borough Hall, 500 Madison Street, Carlstadt, New Jersey 07072-0466 on Thursday, August 9, 2012, commencing at 7:10 p.m.

A P P E A R A N C E S:

STEPHANIE VAUGHN
Project Coordinator
(212) 637-3914
vaughn.stephanie@epa.gov
U.S. EPA
290 Broadway, 19th Floor
New York, New York 10007-1866

PAT SEPPI
Community Relations Coordinator
(212) 637-3679
seppi.pat@epa.gov
U.S. EPA
290 Broadway, 19th Floor
New York, New York 10007-1866

MARION OLSEN
Risk Assessment

STEVE FINN
Project Coordinator

SPEAKERS FROM THE COMMUNITY:

Joseph Guarnaccia

Mayor William Roseman

Reported By:

Donna Lynn J. Arnold, CCR

MS. SEPPI: Well, I'd like to thank everyone for coming tonight. We really appreciate you coming out.

The reason that we're here tonight is to talk about the proposed plan which is EPA's preferred alternative to clean up the groundwater, the Scientific Chemical Processing Site. So after this, if I call it SCP, I think you'll know what I mean.

Stephanie will be talking about some of the site history, giving you an overview of what's going on, what's gone on in the past, different alternatives that we have looked at and why we came up with the alternative that we have decided.

So, my name is Pat Seppi. I'm from the Public Affairs Office in EPA and I'm the Community Involvement Coordinator for the site.

And, I would like to ask my colleagues to please stand up and introduce themselves.

Stephanie.

MS. VAUGHN: Hi. My name is Stephanie Vaughn. I am the Project Manager for the site, Scientific Chemical Processing, SCP.

MS. OLSEN: Hello. My name is Marian Olsen. I'm the Risk Assessor for the site.

MR. FINN: I'm Steve Finn, I'm the

Project Coordinator.

MS. SEPPI: And, you'll notice that we have a stenographer here this evening. Her name is Donna.

And, because this is a public meeting, all your comments will be recorded and be made part of the record. And, then what happens after this, when we issue our final decision, which is called the Record of Decision, we'll also issue a responsive summary that will cover all the questions or comments that you had tonight. We will answer them if they're questions. But, they also have until September 4th, the close of business that day.

If you should think of anything else after this meeting, you can send any other comments that you have by that date to Stephanie. Or, if you know of anybody else who couldn't be here tonight, who might have some comments, please just have them send them to Stephanie also.

And, her information is on the proposed plan. And, it's probably on one of the slides, also.

What I'd like to do -- I mean if you have -- we have a small group. So, I'm not going to say please hold all your questions to the end. I

mean, I think we can make this very informal. So, if something comes up in the presentation and you have a question, please just raise your hand and we'll be

glad to answer it.

All right. So, this is kind of our agenda.

As I said, Stephanie will do the site description and the history. There have been a lot of activities that have gone on at this site. And, I think Stephanie will summarize those, talk a little bit about the groundwater investigation and the preferred remedy and then, as I said, please jump in at any time if you have a question.

This I'm going to go through very quickly. This is a Super Fund process. You probably all know it. But, it just kind of shows you where we are right now.

You know, we were -- there was a site discovery. We did a whole lot of investigating and sampling. And, that's part of the remedial investigation. And, then we take all that information from the remedial investigation and we put it in what's called a Feasibility Study or an FS. And, that's a list of alternatives that have been developed from the information that we found in the

remedial investigation.

So, this is where we are now, at the public comment stage. We have 30 days for public comments and then we'll issue what I said was the

Record of Decision. That's our legally binding document that actually states exactly what our remedy is going to be. And, after that, it goes into design and then remedial action when it actually gets implemented. And, that's very quick for the process.

So, I think now I'll turn it over to Stephanie.

MS. VAUGHN: Right. Thank you, Pat.

And, hi, everyone. I'm just, if I'm not speaking loud enough, let me know. I won't be offended.

I'll, I'll quickly run through the site descriptions since I think most folks here are probably, are pretty familiar with the site.

The site itself consists of both the former Scientific Chemical Processing facility where that was located plus the groundwater that's associated with the activities that occurred on that property.

And, it is a 6 acre property that's located at the corner of Paterson Plank Road and

Gotham Parkway in Carlstadt. And, it's bordered by Peach Island Creek to the northeast and a trucking company to the southeast and, or to the southwest and it's in a generally light industrial commercial area.

This figure -- where did the -- did you take the pointer?

MS. SEPPI: Sorry.

MS. VAUGHN: That's okay.

Here is the site. This is, I believe, where Borough Hall is. This is where we are right now. Here is the creek.

This next slide shows a blow-up of the site and the roads, just to put things in perspective.

And, over here is MetLife Stadium and the grounds of the stadium.

So, how does this site get contaminated? The property was used as a solvent and industrial waste refining and recovery facility for many years from approximately the '40s to approximately 1980 when it was shut down.

The Scientific Chemical Processing Company actually acquired the site in 1971. And, that's where it got its name.

It was placed on the National

Priorities List which is basically a list of Superfund sites that EPA is in charge of addressing and cleaning up, in 1983. And, EPA has been actively involved with this site since 1985.

We, very early on in the process, sent notice letters to 140, what we call potentially responsible parties. Those are companies that we

believe, through our review of the records, that contributed to the waste at the site. And, they are legally responsible to help in the investigation and cleanup of the site.

So, these parties -- this group of potentially responsible parties initiated the investigation of the entire site in 1987.

The site is divided into two study areas. There is the soil on the property itself and the associated shallow groundwater. And, then there is the deeper groundwater that is under and off of the property.

So, just to be clear, this is the property. I'll go into this in more detail but the ground water is contaminated that way to the northeast and a little bit to the south here.

So, I'm just going to quickly go through some of the previous activities that have

happened at the site because there has been a lot.

In 1990, EPA selected an interim remedy to address the contamination on the site, soils and shallow groundwater.

We selected an interim remedy because we wanted to continue studying the site. But, the interim remedy included construction of a vertical containment wall around the perimeter of the contaminated area which basically means like a slurry

wall.

We, adjacent to the Peach Island Creek, we also installed a sheet pile wall to prevent any groundwater from flowing in or out of the creek. Over the top of the contaminated area, we placed a cap to prevent water from infiltrating into the soil and the contamination from spreading and a ground water extraction system to remove the shallow groundwater contained within this system which, again, would prevent further migration of contamination off of the property. And, then we simply placed a fence around the property to restrict access and to monitor this remedy.

Construction was completed in 1992. And, the potentially responsible parties did complete all of the work.

The goals of the interim remedy, as I, as I alluded to were to prevent exposure to contaminated soil and to prevent the migration of contamination in the soil and shallow groundwater to the surrounding areas.

We monitored this remedy for many years and determined that it was effective, that there wasn't really something more aggressive that needed to be done to address the contamination.

As such, in 2002, we selected, EPA

selected a final remedy for the site which, in most ways, just simply included an upgrade of the 1990 interim remedy. But, it included two additional aspects. It included the removal of what we were calling a hot spot of contamination from the contaminated area. We actually excavated that and disposed of it off site and it also included the placement of a much more long term permanent cap over the contaminated area, what we call a two foot thick double containment cap with multiple layers to make sure it stays protective in the long term.

Construction of that remedy was completed about a year ago, in October of 2011. Again, it was completed by the responsible parties with EPA oversight and regular operations and

maintenance of that remedy is on-going.

So, that's where we, that's where we are in terms of actions at the site.

During all of this time, investigation of the groundwater, of the deep groundwater was still on-going. And, so we're here today to present our preferred remedy for addressing the deep groundwater contamination which remains on the site.

So, the bulk of this site related contamination has already been addressed. The site is protected. There is no exposure to contamination either on the property itself or off of the property.

But, in the long term, we need to do something to clean up the remaining contaminated groundwater.

So, as I just said, we've been monitoring the groundwater since 1987. Interim reports have been submitted over the years. Every time we get a new piece of information, it kind of leads you to say, okay, we see something over here, let's install another well there. And, we finally, by 2009, felt comfortable in our understanding with what's going on at this site, that there is some contamination in the deep groundwater in the vicinity of where the SCP or Scientific Chemical Processing facility operated.

In 2008, a report was also submitted which identified a preliminary list of approaches for addressing this contamination. So, since, for the past four years or so we've been studying how best to address this contamination.

But, before I get to that, before I get to what contamination there is and how we're going to address it, one of the questions that EPA needs to answer is, do we need to do anything, is there a risk posed by this contamination. And, EPA has what we call a risk assessment process.

To put it simply, basically in order for there to be a risk, you need to have something

that is toxic, something that is dangerous which pretty much anything can be dangerous in the right or the wrong concentrations. And, you need to have an exposure. And, then those two things together form a risk.

So, if there is contamination in the groundwater but nobody is being exposed to it, there is no risk.

So, we evaluate both current conditions and future risk potential conditions.

So, in this case, with the deep groundwater, the public is not currently exposed to

groundwater contamination from the site. So, therefore, there is no current risk. And, that is why I said that this site is currently protected.

However, in the future, in the State of New Jersey, all water is potentially, has the potential to be used as a drinking water source and must be treated as such. So, therefore, in the future, there is the potential that residents may use this water as a drinking water source. And, we ultimately want to clean that water up so that it is available for a drinking water source.

So, we evaluated the risk to potential future residents and businesses in the area. And, we found that, again, for potential future exposures, both cancer risks and non cancer health hazards

exceed acceptable levels, EPA's acceptable levels. And, so, therefore, action is needed and warranted at this site.

And, the primary contaminants of concern at this site whether causing the most risk are what we call chlorinated solvents, primarily trichloroethylene and tetrachloroethylene. You may have seen TC and TCE, they're solvents in the northern area of the site and another solvent called 1,4 dioxane in the southern area. And, I'm making

that distinction in a moment.

So, this figure shows this site and the area of where we found the groundwater contamination.

Here is the site. Groundwater generally flows in this direction. So, it goes from the site out this way. And, these blue lines are what we call, they're basically showing areas of equal concentration.

So, right in here we have high, relatively high levels of contamination. And, as we move away from this site, the concentrations decrease.

So these -- you probably can't read the number but they are, they correspond to the total concentration of volatile organic compounds. And, within -- this is about a thousand feet which is less

than a quarter of a mile. So, within a thousand feet concentrations basically decline to levels just above those of concern; and, the shell in the, and in parts of the groundwater and in the deeper bedrock portion of the groundwater they actually are below our levels of concern.

So, the area of contamination to the north is relatively small and relatively well-contained already.

In addition, over here, to the south, we have, we found some high concentrations of this other contaminant called 1,4 dioxane. It seems to be located primarily close to that corner of the site.

And, the reason I'm making that distinction is because, depending on what remedy we end up selecting, that, that contaminant may need to be addressed differently than the other contaminants that are present.

So, just to, just to show what we're talking about with the deep groundwater, this is a -- pretend you took the site and took a slice into the ground. Here is the site itself. These red lines represent the slurry wall that surrounds the site vertically and prevents contamination from moving off of the property. Those -- that slurry wall is, ties into this clay layer here.

So, clay, if you can picture clay, you

know, that you played with when you were a child, perhaps, is a very thick substance and ground water and contamination don't readily move through it. So, it's what we call a confining layer. Not much contamination is going to go through that.

So that, the contamination that we're discussing today, that we're proposing a plan to

address is the, the relatively small amount that made it through that clay layer in the past and into this, this deeper, these deeper layers.

That's all I'm going say on that. But, if anybody wants to discuss it further, I'm happy to.

So, there are certain goals of any remedy. The goals of this remedy that we're proposing for the deep groundwater are to prevent potential future exposures to the impacted groundwater, to control future migration of contaminants of concern in the groundwater. So, I show those blue lines. We don't want those to move further away from the site. We want them to shrink.

And, we ultimately want to restore the groundwater quality to drinking water so it's acceptable as a drinking water source.

So, we've evaluated three options to clean up this groundwater. The first alternative we evaluated, there is no action that is mandated by

Superfund law, just to kind of give us a base line.

As I said before, there is a risk so no action is not protective and we're not going -- we didn't evaluate that further.

Alternatives 2 and 3 have a lot of components in common. They both include what we call

monitored natural attenuation and they both include institutional controls. I'll explain what that is in a moment.

Alternative 2 would treat the groundwater in situ which means they would treat the groundwater in the ground. We wouldn't take it out. We would instead put something into the ground in order to break down the contaminants.

Alternative 3 would take the groundwater out of the ground and treat it in some sort of treatment facility.

I just started going through this but in situ treatment is treating contamination in place. There are two general forms of in place treatment. You can either enhance natural biological processes that occur naturally or you can actually help the chemical breakdown of contaminants to occur.

And, the goal is to transform the contaminants to non toxic forms. And, that's as opposed to an ex situ treatment when you're extracting the groundwater. Monitored natural

attenuation means that the contaminants naturally through, there are bugs and stuff in the water that will break down contaminants. And, that happens regardless of what you do.

In some areas that happens quickly, in some areas it happens not so quickly or not at all.

So, we did evaluate this site. We did a lot of testing to see if natural attenuation was occurring on its own and it is occurring. So, you can monitor that to make sure it continues to occur and that it is occurring at a rapid enough pace to be effective.

Finally, the term institutional controls simply refers to things like fences and well restriction areas and things like that.

So, we basically needed to evaluate, do we want to treat the groundwater in the ground or out of the ground. The Superfund process has -- Superfund has a process for evaluating alternatives. We call it the nine criteria.

There are two threshold criteria that any remedy must meet, must be protective of human health in the environment. That is our ultimate goal and must comply with regulations.

Once you meet those threshold criteria, then we look at a bunch of other things to determine,

to kind of weigh the pros and cons and determine which remedy we think we should go with.

So, I'll go through these quickly.

Both Alternatives 2 and 3 are protective, would be protective of human health in the environment. They would address the contamination. They would both comply with standards but, Alternative 3, extracting the groundwater would likely take longer to achieve our goals than treating the groundwater in place.

The, the next -- the first of the balancing criteria is long term effectiveness. That means, you know, in the long term will this remedy remain protective, will it, will it -- that's basically it.

And, again, both would be protective in the long term but Alternative 3 would get there faster, most likely. Meaning that concentrations of contaminants in the groundwater would be reduced to drinking water standards in a shorter time frame.

And, and just to be clear, both of these remedies do have a longer -- do have a very long time frame.

The next, the next criteria is reduction of toxicity mobility or volume. Both alternatives would reduce the mobility and volume of contamination. But, only Alternative 2, where we're actually treating the contaminants in the ground,

would reduce the toxicity of the contamination in the

ground. The other would remove the volume but the toxicity would be reduced outside of the ground. And, there is a preference for treatment in place.

In the short term, this is a big difference between the two remedies. The, the in situ treatment would be very easy to implement, relatively easy to implement. It involves setting up well points in order to place the substances into the ground that would aid in the cleanup of the contaminants. And, we would have to periodically go out and, and maintain those and add more.

Whereas, the extraction alternative would require the building of a treatment plant as well as pipelines throughout this, this highly developed, heavily developed area. And, so there would be a significant impact on the community through that construction. And, also, we would have to take up the property in order to treat the groundwater.

Cost, Alternative 2 does cost less than Alternative 3. And, the State, I'll, I'll say in a moment what our preferred alternative is but the State has agreed, agrees with our choice of preferred remedy.

And, community acceptance is the last

of the criteria. And, that is an important piece of it. And, that's why we're here tonight. And, that's why we have this public comment period. So, please offer your, your comments and your questions.

And, if something were to come out during the public comment period that would cause us to change our, our thoughts on what the preferred remedy is, then we would, then we would make that change.

So, our preferred remedy to treat the deep groundwater is the in situ treatment with monitored natural attenuation and institutional control.

Over these years that we've been studying this site, we have conducted first bench and then pilot scale studies.

What that means is, a bench scale study is basically we take some of the contaminated groundwater, we bring it to a lab and we run tests on it to see if we can break down the contaminants. But, if that is successful, then we might go a pilot scale study where we actually do something in the field but on a smaller scale than treating the entire area just to see -- we want to make sure that whatever we select is actually going to be effective.

So, what we found through those studies is that for the -- I'm going go to the next slide -- for this portion of the contamination, which is the majority of it, we, at this time, think that enhanced anaerobic biodegradation will be effective which basically means that we'll add lactate is our current thought, although that could change during the design, into the ground and the lactate provides food basically for the micro organisms that live in the groundwater that eat the contaminants and break it down to an or through -- break down the contaminants to less toxic forms.

Our testing also indicates that, in this area, where the 1,4 dioxane is present, 1,4 dioxane will not respond to biodegradation. So, there we're proposing, at this point, to do chemical oxidation which is the other side of the in situ treatment process basically using chemicals to break down the chemicals using, using non toxic chemicals to break down the toxic chemicals to other non toxic chemicals.

These dots indicate preliminarily where we would be placing, in this case, the lactate or here, the chemicals, most likely potasium persulfate into the ground.

And, so, this, for example, is the treatment area. And, then, by treating that area, the most heavily contaminated, the highest concentrations, rather, of contamination concurrently with the natural attenuation that is already occurring, that those two things combined will effectively clean up the groundwater.

As I've said, the remedy is already -- the site is already protective. Nobody is exposed to this groundwater.

In order to assure that that remains so, we will work with the State of New Jersey to ensure that what we call a classification exception area is placed around the contaminated area so that absolutely nobody could install a well in this area until drinking water standards are met. And, we will continue to monitor the site over time to make sure all is well.

And, that is basically it.

As Pat said, a public comment period runs through September 4th.

I'll leave this slide up. This is our contact information. There's also a website where you can find information about this site.

And, now I talked a lot. So, if anyone

has any questions, please feel free to ask.

MS. SEPPI: Yes, Joe.

MR. GUARNACCIA: Joseph Guarnaccia, G U A R N A C C I A.

And, my fundamental question is the, tell me what the purpose of this remedy is. You keep saying that there is no, there are no exposure pathways at the moment. You could put a CEA on this thing. You can monitor it. You could ensure that its boundaries are not growing but yet you want to $8,000,000 in the ground to get to what point?

What is the point of this remedy?

And, in particular, let me just say -- well, one fundamental question is, are you going after source material or is this a dissolve plume that you just want to accelerate to closure.

Is that it?

MS. VAUGHN: It's twofold. As you can see here, some of the injection points are within the contaminated area. So, this is within the capped area.

So, we are going to be going within the contaminated area to help contain the plume of contamination.

MR. GUARNACCIA: Right.

MS. VAUGHN: The goal is a remedy and is really to restore the groundwater to --

MR. GUARNACCIA: To accelerate

restoration.

MS. VAUGHN: To accelerate restoration and restore it to drinking water standards.

MR. GUARNACCIA: What kind of time frame, like without remedy, with remedy?

What are the time frames you're talking about?

MS. VAUGHN: With remedy, it's probably on the order of 30 years.

MR. GUARNACCIA: And, without?

MS. VAUGHN: Without, I, I -- Steve, do you happen to know?

MR. GUARNACCIA: Forever? Okay. It might as well be forever.

MS. VAUGHN: It would be, it would be much longer. I mean, it would.

MR. GUARNACCIA: It just seems -- I realize the State has a mandate that all the waters should be considered drinking water, drinking waters.

But, you look at this area, highly industrialized. Nobody should be putting a well in the top hundred feet of this aquifer in the first

place. If you want water, go drill deeper. And, that's certainly what everyone should be thinking about.

And, I would think there's better uses of $8,000,000 than putting it into a ground to get to

what point? I mean, to increase, to decrease you from, from 50 years down to 30 years of restoration?

I, I just wonder the merits of something like this.

You put the cap on. You've eliminated water contact with what's remaining. You've got as much as you can get out of there, feasibility wise. So, now you've got this, this legacy plume that's out there that's, by definition, depleting with time because there's no source.

There is natural biology that's going on. Natural monitored attenuation is an appropriate remedy.

So, you want to -- I don't -- you know what, it's a tough one for me.

MS. VAUGHN: I understand what you're saying. The costs, just for what it's worth, the up front capital costs are much lower. The, the total cost includes the 30 years of monitoring.

MR. GUARNACCIA: And, how about

regionally, are there other sources of contaminated groundwater?

Are we cleaning up this groundwater or are you cleaning up this groundwater?

And, so we'll remove this plume but yet right next door there's yet another plume that you

can't drink the water anyway.

Does that have any factor?

MS. VAUGHN: It does. I mean we, we're monitoring this groundwater and we're cleaning up the concentrations that we're seeing. And, concentrations are declining which indicates that there isn't another plume that is kind of superseding them.

MR. GUARNACCIA: Maybe not right here but maybe half a mile away.

MS. VAUGHN: There are other sites in the area and those are being addressed.

MR. GUARNACCIA: So, it isn't reasonable to think that this is a drinking water aquifer, just by its setting, its industrial setting. Maybe the town can use this money as opposed to throwing it in the ground.

It's a bizarre concept but there's a lot of off, a lot of pollution sources in this area.

And, to clean this one up and let the other one go on polluting, I don't see the benefit. I just don't see the benefit.

MS. SEPPI: You would have thought that no action would be --

MR. GUARNACCIA: I'm not saying no action. I'm saying keep monitoring it for sure.

By the way, the only way you're going

to understand what's going on here is monitoring the time. You can't take a snapshot and say I understand what's going on here.

You got to look at the trends and see if what you think, your conceptual site model is what, is what I think, is it true? Time will tell.

You can continue to monitor these wells that are out there. You've got permanent wells in there. And, you can monitor the trends and there's also trends of going down. That's really what you're looking for.

And, so, and there's no guarantees by -- by implementing this strategy, you are not a guaranty, you're not going to get to drinking water levels because biology doesn't, they'll eat so long as there's food there.

And, this, you know, how low does

that -- what's a reasonable, what's a reasonable concentration that the biology can be sustained? Do you know?

MS. VAUGHN: I, I mean --

MR. GUARNACCIA: 10 PPB.

MS. VAUGHN: For a total, it depends.

MR. GUARNACCIA: What's the drinking water standard for PCE, is it seven in the State?

MS. VAUGHN: 10, I think. I, I have it

in the report over there. No. Wait. It's right here. It's holding up my...

MR. GUARNACCIA: Anyway, the key point is that biology is not going to get you to zero. So, you're going to have to rely on MNA to begin with. And, it's well-known in the science that getting from 10 down to one is an exponential increase in time simply because of the, of nature, the physics of the problem.

These contaminants defuse into the bedrock, believe it or not. And, as you clean up the easy stuff, the stuff that's defused deep into the bedrock will now start bleeding out. And, you will get one, two, 10 PPB forever.

So, if that's what you're going for, then there's no reason to bother.

MS. VAUGHN: Well, fortunately, the bedrock concentrations are already below drinking water standards.

MR. GUARNACCIA: So, this is all in this consolidated overgrowth?

MS. VAUGHN: Yes. It's not attraction of bedrock issue. It doésn't appear to be.

MR. GUARNACCIA: It doesn't. That's good. Well, all right.

MS. VAUGHN: Which makes it a little more hopeful.

MR. GUARNACCIA: You can call it an aquifer. It's actually conductive enough to support production of water and that's the definition of an aquifer.

MS. VAUGHN: And, that's why we did the pilot tests, honestly. We wanted to make sure that doing something active other than a monitoring natural attenuation would even be effective. And, the tests show that it would be.

And, as you said, you're right, it needs to be monitored. We've been monitoring the groundwater since 1983. That's how we got to this point.

I, I guaranty that the potentially

responsible parties, if they find that the treatment is not being effective, they will, they will let us know and we will find out and they would petition to, to stop it.

I mean, I don't think anybody wants to throw good money after for no use.

MR. GUARNACCIA: Well, right. Study the results and that makes you smarter. All right.

Well, this is better than punk treatment. That's not going to get you anywhere.

MS. VAUGHN: No.

MR. GUARNACCIA: It's all about

contact. And, you got it. I guess that's why you have so many injection points. You got to get these amendments where you need them.

MS. VAUGHN: And, this is just preliminary. It still needs to complete the design.

MR. GUARNACCIA: And, the difference between dioxane and these other compounds -- I mean, why can't -- dioxane doesn't degrade biologically?

MS. VAUGHN: No. And, I'm not a chemist so I can't answer that question of why.

I don't know -- Steve, do you know why?

MR. FINN: It's actually very recalcitrant for that information. There's so many

problems with it. That's why it was used as a stabilizer for some chlorinated solvents and it doesn't degrade.

There's some research going on that may find ways to biodegrade it. But, nothing has gotten out of the labs so far.

MR. GUARNACCIA: There's only dioxane in that corner? Are there other compounds?

And, it seems odd that you'd have -- are you sure that's coming from this site? It's not coming from across the street?

MS. VAUGHN: There are other compounds in that corner, the other CC, PC.

MR. GUARNACCIA: And they will be

effected by the chemical oxidation, I guess?

MS. VAUGHN: They would be but I think the M and A will be the primary -- well...

MR. FINN: Chemical oxidation will get it, will oxidize whatever it will oxidize. If chlorinate is there, it will get it.

MR. GUARNACCIA: Right.

MS. SEPPI: Thank you for your comments.

Anybody else have questions?

MAYOR ROSEMAN: William Roseman, R O S

E M A N.

First, Stephanie, I want to thank you for all your help during the course of this project. Any time a question arose, you were always here and we appreciate that.

MS. VAUGHN: Thank you.

MAYOR ROSEMAN: Just for clarification purposes, the gentleman mentioned about the cost that's not being born by EPA or by taxes. That's being born by individuals.

MS. VAUGHN: Yes.

MAYOR ROSEMAN: So that answers that.

So, my question really is, I sat in this room, it could have been maybe more than 25 years ago, when they were talking about what they

were going to do and how they were going to clean up the property. And, ultimately, it was very different, what they said they were going to do and what they actually did.

I mean, I'm not an engineer or, or environmental scientist. I don't know whether one is better than the other.

But, my question is, I've been on that site on several occasions and I spoke to an individual who I believe was an engineer. I don't

remember -- do you remember his name? Ronnie?

MS. VAUGHN: Ronnie V..

MS. SEPPI: From the Corps of Engineers.

MS. VAUGHN: Yes.

MAYOR ROSEMAN: And, he was explaining to me that they were going to build a pumping station there and that that was, you know, that they would draw the water out of the ground and then clean it up and then put it back down.

MS. VAUGHN: That, that actually was never something that we were, that we seriously considered. I think maybe perhaps what he was talking about is part of the on-property remedy. We do have a groundwater extraction system but it's not like a treatment system where basically we have this, effectively a box around the contaminated material on

the property and there is water in that box. So, we extract that water and put it, bring it to a tank where we dispose of it off site. So, that's --

MAYOR ROSEMAN: Okay.

MS. VAUGHN: Yes. That will be going on.

MAYOR ROSEMAN: I didn't realize that.

MS. VAUGHN: That's that little

building on the northwest corner of the site.

MAYOR ROSEMAN: A reporter called me about it yesterday and asked me and I was like, well, officially they said they were going to do this. I didn't realize I was giving bad information. But, I didn't realize that it was the same thing.

MS. VAUGHN: I think that's probably what it is.

MAYOR ROSEMAN: And, the Borough, as you know, now owns that property.

When do you think we'll be able to use it?

MS. VAUGHN: Well, I, I think -- I mean, we've been saying to you for years, I know we've been talking and that's been your concern. The public comment period has to end.

Assuming we go with this remedy of in situ treatment, we would need to design the remedy

and see how much of a footprint of the property we need in order to complete and then continue the remedy. But, it should be relatively small as compared to a pump and treat type system.

So, I think, you know, with the understanding that we would need continued access to the property indefinitely, we're closer to a point --

I'd say within -- I don't know how long till we have, we're comfortable with the design. But, I'd say, within the next year or so we should have a better feeling of, of how the property can be used and how much of it will be available.

MAYOR ROSEMAN: It's like -- I mean, I shouldn't say this. I should consider off the record right now.

But, what we were thinking about potentially using it as a park and ride, with the Super Bowl coming, as an income producing property for the Borough.

But, it looks like as though we might not be able to do that for the Super Bowl.

MS. VAUGHN: I don't know. Maybe not for this Super Bowl but maybe the next one.

MAYOR ROSEMAN: Thank you very much.

MS. VAUGHN: Okay.

MAYOR ROSEMAN: I have another meeting at 8 o'clock so I'll have to leave. But, thank you.

MS. VAUGHN: Okay. Well, thank you.

MS. SEPPI: Any other questions?

Okay. Well, again, thank you very much for coming.

If you have more comments, please, you

can always e-mail them or call Stephanie with them.

And, thank you. We'll be in touch soon.

MS. VAUGHN: Thank you all.

(The hearing concludes at 7:55 p.m..)

C E R T I F I C A T E

I CERTIFY that the foregoing is a true and accurate transcript of the testimony and proceedings as reported stenographically by me at the time, place and on the date herein before set forth.

I DO FURTHER CERTIFY that I am neither a relative nor employee nor attorney or counsel of any of the parties to this action, and that I am neither a relative nor employee of such attorney or counsel, and that I am not financially interested in this action.

_____ _____
DONNA LYNN J. ARNOLD, C.C.R.
LICENSE NO. XI00991
MY COMMISSION EXPIRES 08/04/14

24

25

ATTACHMENT D

WRITTEN COMMENTS

Cleanup at Scientific Chemical Superfund Site in Carlstadt, New Jersey
Roger Lamb
to:
Stephanie Vaughn
08/08/2012 09:58 PM
Hide Details
From: Roger Lamb <RLamb@otek.com.au>

To: Stephanie Vaughn/R2/USEPA/US@EPA

History: This message has been forwarded.

1 Attachment

image002.jpg

Hello Ms. Vaughn my comment remediation for this site using ISCO is make sure a state-of-the art assessment of the VOCs in 3D (using direct sensing tools) has been performed and that the data collected from the investigations has been thoroughly analysed using software similar to that used by Principia Mathematica (ww.prinmath.com) or there is a greater risk the ISCO will fail due an under-estimation of the mass, volume, and distribution of the VOCs in the subsurface. If only soil borings and monitoring wells have been used thus far for site characterization I am afraid to say the ISCO will surely fail.

Cheers

Description: OTEK-Logo-Full-

Roger Lamb
Principal Environmental Scientist
T +61 3 9095 1900 **D** +61 3 9095 1914 **F** +61 3 9593 8555
A Level 1, 222 St Kilda Rd, St Kilda VIC 3182
E rlamb@otek.com.au
M +61 418 453 698
W www.otek.com.au

National | Melbourne | Sydney | Brisbane | Perth | Adelaide | Beijing

********** ATTACHMENT NOT DELIVERED **********

This Email message contained an attachment named
image001.jpg
which may be a computer program. This attached computer program could contain a computer virus which could cause harm to EPA's computers, network, and data. The attachment has been deleted.

This was done to limit the distribution of computer viruses introduced into the EPA network. EPA is deleting all computer program attachments sent from the Internet into the agency via Email.

If the message sender is known and the attachment was legitimate, you should contact the sender and request that they rename the file name extension and resend the Email with the renamed attachment. After receiving the revised Email, containing the renamed attachment, you can rename the file extension to its correct name.

For further information, please contact the EPA Call Center at (866) 411-4EPA (4372). The TDD number is (866) 489-4900.

********** ATTACHMENT NOT DELIVERED **********

APPENDIX B
Statement of Work
Scientific Chemical Processing Superfund Site
Operable Unit 3—Groundwater
Carlstadt, Bergen County, New Jersey

I. WORK TO BE PERFORMED

As set forth within the Environmental Protection Agency's (EPA's) Record of Decision for Operable Unit 3 at the Site issued September 27, 2012 (OU 3 ROD), the objectives of the work (hereinafter "Work," as defined in Section IV of the Consent Decree Civil Action No. _____ for Performance of the Operable Unit 3 Remedial Action for the Scientific Chemical Processing Superfund Site (Consent Decree) to which this Statement of Work (SOW) is attached) to be conducted at the Scientific Chemical Processing Superfund Site (SCP Site or Site) are to:

- Prevent exposure to contaminated groundwater above acceptable risk levels;
- Prevent or minimize future migration of contaminants of concern in the groundwater; and
- Restore groundwater quality to the lower of the federal drinking water standards or the New Jersey Groundwater Quality Standards (NJGWQSs).

These are the objectives of implementation of the remedy selected in the OU 3 ROD, attached as Appendix A to the Consent Decree. The Settling Defendants shall finance and perform the Work in accordance with the Consent Decree, the OU 3 ROD, and this SOW, including all terms, conditions and schedules set forth herein or developed and approved hereunder.

The Work will consist of Design, Construction, and Operation and Maintenance (O&M) of the major components of the remedy selected in the OU 3 ROD which are as follows:

- Treatment of contaminated off-property and deep groundwater using in-situ treatment technologies, through the injection of a substance or substances into the groundwater to cause or enhance the breakdown of the contaminants of concern to less toxic forms;
- Monitored natural attenuation both during and after active treatment; and
- Institutional controls to assure that the remedy remains protective until cleanup goals are achieved.

II. PERFORMANCE STANDARDS

Performance Standards are the cleanup standards and other measures of achievement which are required to be met in the Consent Decree to achieve the cleanup goals and other objectives of the Remedial Action selected in the OU 3 ROD.

The Remedial Design (RD) shall be prepared to achieve compliance with the Performance Standards set forth in the Remedial Action Objectives section of the OU 3 ROD. The RD shall also be designed to achieve compliance with all legally applicable and relevant and appropriate requirements (ARARs) as set forth in the OU 3 ROD.

III. PROJECT SUPERVISION/MANAGEMENT

A. SUPERVISING CONTRACTOR

All aspects of the Work to be performed by Settling Defendants pursuant to the Consent Decree shall meet any and all requirements of applicable federal, state and local laws and be performed under the direction and supervision of a Supervising Contractor, the selection of which shall be subject to disapproval by EPA. The Supervising Contractor shall be a qualified licensed professional engineering firm. All plans and specifications shall be prepared under the supervision of, and signed/certified by, as necessary, a licensed New Jersey professional engineer. Within ten (10) calendar days (hereinafter the term "Day" or "day" is as defined in the Consent Decree) after the lodging date of the Consent Decree, Settling Defendants shall notify EPA in writing of the name, title, and qualifications of any contractor proposed to be the Supervising Contractor. Settling Defendants shall demonstrate that the proposed contractor has a Quality System that complies with the Uniform Federal Policy for Implementing Quality Systems (UFP-QS), (EPA/505/F-03/001, March 2005), by submitting a copy of the proposed contractor's Quality Management Plan ("QMP"). EPA will approve of the Supervising Contractor in accordance with Paragraph nine (9) of the Consent Decree.

B. PROJECT COORDINATOR

Within fourteen (14) Days after the lodging of the Consent Decree, Settling Defendants shall notify EPA, in writing, of the name and title of the proposed Project Coordinator, and alternate Project Coordinator, who may be employees of the Supervising Contractor. The Project Coordinator shall be responsible for the day to day management of all Work to be performed pursuant to the Consent Decree. The Project Coordinator shall have adequate technical and managerial experience to manage all Work described in this SOW and under the Consent Decree. The Project Coordinator shall be knowledgeable at all times about all Work. The Project Coordinator shall be the primary contact for EPA on all matters relating to the Work at the Site and should be available for EPA to contact during all working days. The Project Coordinator shall not be an attorney.

IV. PROJECT REPORTS AND CONSTRUCTION MEETINGS

In addition to the other deliverables set forth in the Consent Decree, Settling Defendants shall provide written monthly progress reports to EPA, until EPA approves a shift to quarterly reports as described below, with respect to actions and activities undertaken pursuant to the Consent Decree. Monthly progress reports shall be submitted on or before the 15th day of each month following the effective date of the Consent Decree. At a minimum, monthly progress reports shall include the following:

1. A description of all actions which have been taken toward achieving compliance with the Consent Decree during the prior month;

2. A description of any violations of the Consent Decree and other problems encountered during the prior month;

3. A description of all corrective actions taken in response to any violations or problems which occurred during the prior month;

4. A summary of the results of all sampling, test results and other data received or generated by the Settling Defendants during the course of implementing the Work during the prior month. Such results shall be validated in accordance with the approved Quality Assurance Project Plan developed in conformity with the SOW. Also identify all plans, reports, and other deliverables required by the Consent Decree completed and submitted during the previous month;

5. A description of any modifications to the work plans or other schedules that the Settling Defendants have proposed to EPA or that have been approved by EPA, and a description of all plans, actions, and data scheduled for the next eight weeks. Also a description of all activities undertaken in support of the Community Relations Plan (if requested by EPA) during the previous month and those to be undertaken in the next eight weeks, if requested by EPA;

6. An estimate of the percentage of the Work required by the Consent Decree which has been completed as of the date of the progress report; and

7. An identification of all delays encountered or anticipated that may affect the future schedule for performance of the Work, and all efforts made by the Settling Defendants to mitigate delays or anticipated delays.

During the remedial construction of the RA, the Settling Defendants shall participate in construction meetings as specified in the approved Remedial Action Work Plan(s) with representatives from EPA and/or EPA's contractor. At a minimum, the Settling Defendants' Supervising Contractor and their Project Coordinator or designee shall attend the construction meetings. If the Project Coordinator or designee is an employee of the Supervising Contractor, only the Project Coordinator or designee needs to attend the construction meetings. At a minimum, these construction meetings shall include, but not be limited to the following:

1. A description of all field activities and field actions which have been taken toward achieving compliance with the Consent Decree since the last construction meeting;

2. A description of all field activities and field actions which are planned until the next construction meeting;

3. A description of all corrective activities and actions taken in response to any violations or problems which occurred since the last construction meeting; and

4. An identification of all delays encountered or anticipated that may affect the future schedule for performance of the Work, and all efforts made by the Settling Defendants to mitigate delays or anticipated delays.

Following EPA's approval of a shift from monthly to quarterly progress reports, Settling Defendants shall submit to EPA written quarterly O&M reports describing, at a minimum, the operation and maintenance and monitoring activities performed, describing any problems or issues that have arisen or are anticipated, and including a summary of all validated results of sampling and tests and other data received or generated by Settling Defendants or their contractors or agents in the period addressed by the report. Settling Defendants shall submit these reports within 15 days of the end of the period addressed by the report. Settling Defendants' obligation to submit progress reports continues until EPA gives the Settling Defendants written notice under Section X of the Consent Decree.

V. REMEDIAL DESIGN ACTIVITIES

The RD activities to be performed in support of the implementation of the Work include, but are not limited to, the following:

A. Development of work plans, tasks, and schedules for Preliminary RD Investigations, additional Pilot Studies, if necessary, Preliminary RD Report(s) (35% completion), Draft Final RD Report(s), and Final RD Report(s) (collectively, RD Reports);

B. Design of 2 in-situ groundwater treatment systems (the first for the geographic area at the Site described in the ROD as the "Northern Area" and the second for the remainder of the OU 3 area), a network of wells for Monitored Natural Attenuation, and Institutional Controls as outlined in the OU 3 ROD;

C. Tasks, which may include soil or groundwater sampling, to collect data necessary to refine the in-situ treatment technology to be used in each area, including the substances to be injected, the number of injection points, the extent of the treatment zone, and the timeframes for treatment; perform a pilot study(ies), if necessary; determine the location of a network of wells for Monitored Natural Attenuation; evaluate the effectiveness of the remedial action; and evaluate any adverse impacts that might be caused by the work in order to develop plans to mitigate those adverse impacts.

D. Evaluation of the need for air monitoring during construction activities at the Site and development, if necessary, of plans to ensure that air emissions resulting from construction activities meet applicable or relevant and appropriate air emission requirements;

E. Tasks required for establishing institutional controls, including, without limitation, the implementation of a Classification Exception Area/Well Restriction Area (CEA/WRA) to restrict the use of groundwater until the appropriate groundwater cleanup standards are achieved, and, in accordance with the ROD, evaluation of the need for other institutional controls besides the CEA/WRA;

F. Tasks to identify how the RD and the RA will be implemented using the principles specified in EPA Region 2's Clean and Green Policy (available at www.epa.gov/region2/superfund/green_remediation/policy.html).

VI. REMEDIAL DESIGN WORK PLAN

Within 60 days after EPA's issuance of a written authorization to proceed pursuant to Paragraph 9 of the Consent Decree, the Settling Defendants shall submit a draft Remedial Design Work Plan to EPA for review and approval pursuant to Section VI (Performance of Work by Settling Defendants) and Section XI (EPA Approval of Plans, Reports, and Other Deliverables) of the Consent Decree.

The draft RD Work Plan shall be prepared in accordance with this SOW, the Consent Decree, CERCLA and relevant EPA guidance, including the EPA document entitled Guidance on Oversight of Remedial Designs and Remedial Actions performed by Potentially Responsible Parties, (OSWER directive 9355.5-01, EPA/540/g-90-001), dated April 1990, and shall be in conformance, inter alia, with the Superfund Remedial Design and Remedial Action Guidance, dated June 1986, and any updates thereto.

The draft Remedial Design Work Plan shall include tasks, work plans, field work and data collection, and schedules for implementation of the RD, that are necessary to ensure compliance with performance standards, ARARs, or other requirements of the remedy selected in the OU 3 ROD, including the preparation and submission of Pre-Design Investigation Report(s), Preliminary RD Report(s) (35% completion), Draft Final RD Report(s) and Final RD Report(s) (collectively, RD Reports). The draft Remedial Design Work Plan shall also include a draft schedule for remedial action, O&M, and monitoring activities. The schedule shall be in the form of a task/subtask activity bar chart or critical path method sequence of events. The RD Work Plan shall also include a description of how the RD will incorporate the principles found in EPA Region 2's Clean and Green Policy (available at www.epa.gov/region2/superfund/green_remediation/policy.html). At a minimum, the draft Remedial Design Work Plan shall include, but not be limited to, the following:

A. A description of all RD Tasks.

B. A detailed schedule for all RD activities and a draft schedule for all RA, O&M, and Long Term Monitoring activities.

1. The RD schedule shall provide for the completion and submittal to EPA of a Final RD Report (100% completion) for in situ remediation of the Northern Area within 12 months of EPA's written approval of the completion of the Remedial Design Work Plan, and a final RD Report (100% completion) for all other remedial components within 24 months of EPA's written approval of the completion of the Remedial Design Work Plan, unless EPA approves a longer time period in either case.

2. The draft schedule for the RA shall provide for the completion of construction of the elements of the remedy within 6 months of EPA's Approval of each RA Work Plan (RAWP).

C. A Pre-Design Investigation plan (PDI) shall be prepared by the Settling Defendants, which provide for the collection of all data and work necessary to complete RD field activities including, but not limited to: (a) sampling to refine the details of the in-situ treatment technology to be used in each area, including the substances to be injected, the number of injection points, the extent of the treatment zone, and the timeframes for treatment, and (b) sampling to determine the placement of a network of wells for Monitored Natural Attenuation.

D. A plan for establishing institutional controls, including, without limitation, the implementation of a CEA/WRA to restrict the use of groundwater impacted by the Site until the appropriate groundwater cleanup standards are achieved.

E. A plan for the performance of air monitoring, if necessary, during construction activities at the Site to ensure that air emissions resulting from the construction activities meet applicable or relevant and appropriate air emission requirements.

F. A plan to mitigate any adverse impacts caused by the work.

G. Quality Assurance/Quality Control Project Plan

1. Prior to commencement of any monitoring under the Consent Decree, a Quality Assurance/Quality Control Project Plan (QAPP) shall be prepared by the Settling Defendants, which is consistent with the Uniform Federal Policy for Quality Assurance Project Plans (UFP-QAPP), Parts 1, 2 and 3, EPA-505-B-04-900A, B and C, March 2005 or newer, and other guidance documents referenced in the aforementioned guidance documents. Activities involving the collection, generation, use and/or reporting of environmental data; design-, construction and/or operation of environmental technologies; development and/or use of models; and other activities that need quality assurance or quality control requirements shall incorporate quality assurance, quality control, and chain of custody procedures in accordance with the Uniform Federal Policy for Implementing Quality Systems (UFP-QS), EPA-505-F-03-001, March 2005 or newer, Uniform Federal Policy for Quality Assurance Project Plans (UFP-QAPP), Parts 1, 2 and 3, EPA-505-B-04-900A, B and C, March 2005 or newer, and other guidance documents referenced in the aforementioned guidance documents. The

UFP documents may be found at: http://www.epa.gov/fedfac/pdf/ufp_qapp_v1_0305.pdf. Environmental data, as referred to above, are defined as any measurements or information that describe environmental processes, location, or conditions; ecological or health effects and consequences; or the performance of environmental technology. For EPA, environmental data include information collected directly from measurements, produced from models, and compiled from other sources such as data bases or the literature.

2. In addition to the above, guidance and procedures that are located in the EPA Region 2 DESA/HWSB website: http://www.epa.gov/region02/qa/documents.htm, as well as other OSWER directives and EPA Region 2 policies should be followed, as appropriate. Subsequent amendments to the above, upon notification by EPA to the Settling Defendants of such amendments, shall apply only to procedures conducted after such notification.

3. The Settling Defendants will provide electronic submittals of new sampling and geologic data in accordance with Region 2 policies, guidelines, and formats. The Region 2 Electronic Data Deliverable (EDD) is a standardized format for all electronic submittals. Electronic submittals of sampling and geologic data will be made in accordance with the project schedule and in conjunction with the submittal of draft reports. The Settling Defendants are responsible for reviewing and approving any contractor work for consistency with Region 2 EDD requirements. The Region 2 EDD Guidance and Requirements include instruction manuals and data submission and validation files. The most recent EDD Guidance and Requirements can be found at: http://www.epa.gov/region02/superfund/medd.htm.

4. The QAPP shall also specifically include the following items:

   a. An explanation of the way(s) the sampling, analysis, testing, and monitoring will produce data for the RD/RA/O&M phases;

   b. A detailed description of the sampling, analysis, and testing to be performed, including sampling methods, analytical and testing methods, sampling locations and frequency of sampling; and

   c. A map depicting sampling locations (to the extent that these can be defined when the QAPP is prepared).

5. In order to provide quality assurance and maintain quality control with respect to all samples to be collected, Settling Defendants shall ensure the following:

   a. Quality assurance and chain-of-custody procedures shall be performed in accordance with standard EPA protocol and guidance, including the guidance provided in the EPA Region 2

Quality Assurance Homepage, and the guidelines set forth in the Consent Decree.

b. Once laboratories have been chosen, each laboratory's quality assurance plan (LQAP) should be submitted to EPA for review. In addition, the laboratory should submit to EPA current copies (within the past six months) of laboratory certification provided from either a State or Federal Agency which conducts certification. The certification should be applicable to the matrix/analyses which are to be conducted. If the laboratory does not participate in the Contract Laboratory Program (CLP), they must submit to EPA the results of performance evaluation (PE) samples for the constituents of concern from within the past six months or they must complete PEs for the matrices and analyses to be conducted and results must be submitted with the LQAP.

c. The laboratory used for analyses of samples must perform all analyses according to accepted EPA methods.

d. Unless indicated otherwise in the approved QAPP, Settling Defendants will validate 100% of the data based on EPA's request.

e. Submission of the validation package (checklist, report and Form 1s containing the final data) to EPA, to the extent applicable, prepared in accordance with the provisions of Subparagraph g, below.

f. Assurance that all analytical data that are validated as required by the QAPP are validated according to the latest version of EPA Region 2 data validation Standard Operating Procedures. Region 2 Standard Operating Procedures are available at: http://www.epa.gov/region02/qa/documents.htm

g. Unless indicated otherwise in the QAPP, Settling Defendants shall require deliverables equivalent to CLP data packages from the laboratory for analytical data. Upon EPA's request, Settling Defendants shall submit to EPA the full documentation (including raw data) for this analytical data. EPA reserves the right to perform an independent data validation, data validation check, or qualification check on generated data.

h. Settling Defendants shall insert a provision in their contract(s) with the laboratory used for analyses of samples, which will require granting access to EPA personnel and authorized representatives of EPA for the purpose of ensuring the accuracy of laboratory results related to the Site.

i. Document Field Activities - The Settling Defendants shall consistently document the quality and validity of field and laboratory data compiled during the Work.

Information gathered under this Consent Decree will be consistently documented and adequately recorded by the Settling Defendants in well maintained field logs and laboratory reports. The method(s) of documentation must be specified in the Work Plan and QAPP. Field logs or dedicated field log-books must be used to document observations, measurements, and significant events that have occurred during field activities. Electronic field record keeping can be used, however, it does not eliminate the requirement for manual record keeping and/or submittals. Measurements or observations may also be recorded by appropriate electronic media and transferred into the report from these media. Laboratory reports must document sample custody, analytical responsibility, analytical results, adherence to prescribed protocols, nonconformity events, corrective measures, and/or data deficiencies.

j. Maintain Sample Management and Tracking.

The Settling Defendants shall maintain field reports, sample shipment records, analytical results, and QA/QC reports, in addition, the Settling Defendants shall safeguard chain-of custody forms and other project records to prevent loss, damage, or alteration of project documentation.

6. In the event that additional sampling locations, testing, and analyses are required, Settling Defendants shall submit to EPA an addendum to the QAPP, if requested by EPA, for approval by EPA.

H. Health and Safety Plan

Settling Defendants shall submit a Health and Safety Plan (HSP) with the RD Work Plan and RAWP(s) for all activities performed under the Consent Decree. HSPs shall be developed by Settling Defendants to address the protection of public health and safety and the response to contingencies that could impact public health, safety, and the environment. The HSP shall satisfy the requirements of the Occupational Safety and Health Guidance for Hazardous Waste Site Activities, (June 1990, DHHS NIOSH Publication No. 90-117), and the Occupational Safety and Health Administration, U. S. Department of Labor (OSHA) requirements cited below:

1. RD/RA/O&M activities by or on behalf of Settling Defendants shall be performed in such a manner as to ensure the safety and health of personnel so engaged. Activities shall be conducted in accordance with all applicable general industry (29 CFR Part 1910) and construction (29 CFR Part 1926) OSHA

standards, and EPA's Standards Operating Safety Guides (OSWER, 1988), as well as any other applicable State and municipal codes or ordinances. All RD/RA/O&M activities by Settling Defendants, their contractors or subcontractors, shall comply with those requirements set forth in OSHA's final rule entitled Hazardous Waste Operations and Emergency Response, 29 CFR §1910.120, Subpart H.

2. Each HSP shall include, at a minimum, the following items:

   a. Plans showing the location and layout of any temporary facilities to be constructed;

   b. Description of the known hazards and evaluation of the risks associated with the area of contaminated groundwater and related potential health impacts;

   c. List of key personnel and alternates responsible for safety, response operations, and protection of the public;

   d. Description of levels of protection (based on specified standards) to be used by all personnel;

   e. Delineation of work, decontamination, and safe zones, and definitions of the movement of zones;

   f. Description of decontamination procedures for personnel and equipment, and handling and removal of disposable clothing or equipment;

   g. Incidental emergency procedures which address emergency care for personnel injuries and exposure problems, and containment measures. These procedures shall include evacuation routes, internal and external communications procedures for response to fire, explosion, or other emergencies, the name of the nearest hospital and the route to that hospital. Local agencies with the capability to respond to emergencies shall be identified and their capabilities shall be described. A description of the procedures for informing the community of these measures shall be outlined;

   h. Description of the personnel medical surveillance program in effect;

   i. Description of monitoring for personnel safety;

   j. Description of routine and special personnel training programs; and

k. Description of an air monitoring program to determine concentrations of airborne contaminants to which workers or others may be exposed. The results of work-zone air monitoring may be used as a trigger for implementing air monitoring.

I. Access and Other Approvals

The draft RD Work Plan shall include descriptions of known access and other approvals and institutional controls which Settling Defendants will need to comply with the Consent Decree, with the exception of those approvals needed from EPA. This description shall detail how such access and other approvals will be sought, and shall include a schedule for obtaining all necessary access and other approvals including, but not limited to, approval from any off-Site facility accepting waste materials shipped by or on behalf of Settling Defendants. This description shall be updated as appropriate, if subsequent approvals are required.

J. Institutional Controls

The draft Remedial Design Work Plan shall include a description of appropriate institutional controls, including, without limitation, the implementation of a CEA/WRA, to restrict the use of groundwater until the aquifer is restored to the appropriate NJ Ground Water Quality Standards and federal drinking water standards, whichever is lower. The Settling Defendants will develop the required information and submittals to secure the appropriate institutional controls. Institutional controls may include such controls as deed restrictions, groundwater well use restrictions, and the implementation of a CEA/WRA. The restrictions shall be maintained until EPA notifies the Settling Defendants that EPA has determined, after a reasonable opportunity for review and comment by the State of New Jersey, that the restrictions may be lifted without posing a threat to human health and the environment.

VII. APPROVAL OF REMEDIAL DESIGN WORK PLAN

EPA will either approve the draft RD Work Plan or require modifications as per the Consent Decree. Settling Defendants shall make the modifications required by EPA in accordance with the procedures set forth in Section XI (EPA Approval of Plans, Reports, and Other Deliverables) of the Consent Decree. Following EPA approval, the draft RD Work Plan shall become the RD Work Plan and shall be incorporated into and become an enforceable part of the Consent Decree.

VIII. REMEDIAL DESIGN

A. Settling Defendants shall perform the RD activities in conformance with the RD Work Plan approved by EPA and within the time frames specified in the RD schedule contained therein.

Within forty-five (45) days of the completion of all field work performed under the PDI plan for each area, the Settling Defendants shall submit a Pre-Design

Investigation Report to EPA for review and approval pursuant to Section XI (EPA Approval of Plans, Reports, and Other Deliverables) of the Consent Decree.

B. The RD Reports shall be submitted to EPA and the New Jersey Department of Environmental Protection in accordance with the schedule set forth in the EPA-approved RD Work Plan. Each RD Report shall include a discussion of the design criteria and objectives, with emphasis on the capacity and ability to meet design objectives successfully. Each report shall also include the plans and specifications that have been developed at that point in time, along with a design analysis. The design analysis shall provide the rationale for the plans and specifications, including results of relevant sampling and testing performed, supporting calculations and documentation of how these plans and specifications will meet the requirements of the OU 3 ROD and shall provide a discussion of any impacts these findings may have on the RD. In addition to the above, the RD Reports shall include the following items:

1. Technical specifications for photographic documentation of the remedial construction work;

2. A discussion of the manner in which the RA will achieve the Performance Standards;

3. A discussion of the manner in which the RA will comply with EPA Region 2's Clean and Green Policy (available at www.epa.gov/region2/superfund/green_remediation/policy.html);

4. A description of the status of implementation of institutional controls, including, without limitation, the implementation of a CEA/WRA to further restrict the use of groundwater associated with the Site until the aquifer is restored to the appropriate standards;

5. A draft schedule for RA activities, and a preliminary schedule for O&M activities, including a long-term sampling program;

6. The draft schedule for the RA shall provide for the completion of the installation of the remedy within 6 months of EPA's approval of each RAWP. The draft schedule for RA and monitoring activities may be revised during the remedial process, subject to EPA's approval;

7. A Construction Quality Assurance Project Plan (CQAPP), which shall detail the approach to quality assurance during construction activities at the Site;

8. A report describing those efforts made to secure access and institutional controls and obtain other approvals and the results of those efforts (see Sections VI.I. and J. above). Legal descriptions of property or easements to be acquired, if necessary, shall be provided; and

9. A plan for implementation of construction and construction oversight.

10. A stand-alone draft O&M Plan and implementation schedule.

IX. APPROVAL OF RD REPORTS

A. EPA will review and comment on the Pre-Design Investigation Report(s), Preliminary RD Report(s) (35% completion), and Draft Final RD Report(s). Settling Defendants shall make those changes required by EPA's comments in the succeeding drafts of the remedial design report (e.g. changes required by comments on the Preliminary RD Report (35% completion) shall be made in the Draft Final RD Report).

B. Settling Defendants shall submit the Final RD Report(s) to EPA for review and approval pursuant to Section XI (EPA Approval of Plans, Reports, and Other Deliverables) of the Consent Decree. Once approved by EPA, the Final RD Report(s) shall be incorporated into and become an enforceable part of the Consent Decree.

X. REMEDIAL ACTION

A. Within ninety (90) days after the approval of each Final RD Report by EPA, Settling Defendants shall submit a draft Remedial Action Work Plan (RAWP) for remedial construction activities to EPA for review and approval pursuant to Section XI (EPA Approval of Plans, Reports, and Other Deliverables) of the Consent Decree. Each draft RAWP shall include, at a minimum, the following items:

1. A description of the personnel requirements, responsibilities, and duties, including a discussion for training, and lines of authority;

2. A description of all construction-related sampling, analysis, and monitoring to be conducted under the Consent Decree, as well as a description of all O&M requirements including long term monitoring requirements;

3. If applicable, a "Request for Modification of Approved Final RD Report," including any requests for modification of the approved Final RD Report, based on construction methods identified by the contractor(s), or proposed modification of the construction schedule developed under Section VIII., above, or any other requests for modification, subject to EPA approval in its sole discretion;

4. The QAPP shall be amended, as necessary. All sampling, analysis, data assessment, and monitoring shall be performed in accordance with the approved QAPP. All testing methods and procedures shall be fully documented and referenced to established methods or standards;

Each draft RAWP should also include the following:

a. Identification of the RA Project Team (including, but not limited to, the Construction Contractor);

b. A final schedule for the completion of the RA and all major tasks therein, as well as a schedule for completion of required plans, and other deliverables;

c. Methodology for implementation of the QAPP;

d. Methodology for implementation of the RA;

e. Procedures and plans for the decontamination of construction equipment and the disposal of contaminated materials;

f. Discussion of the methods by which construction operations shall proceed. Discussion shall include the following, as appropriate:

   i. Timing of and manner in which activities shall be sequenced;

   ii. Preparation of the construction area including security, utilities, decontamination facilities, construction trailers, and equipment storage;

   iii. Coordination of construction activities;

   iv. Maintenance of the construction area during the RA;

   v. Coordination with local authorities regarding contingency planning and potential traffic obstruction; and

   vi. Entry and access during the construction period(s) and periods of inactivity, including provisions for decontamination, erosion control, and dust control.

g. Discussion of construction quality control, including:

   i. Methods of performing the quality control inspections, including when inspections should be made and what to look for;

   ii. Control testing procedures, as appropriate, for each specific test. This includes information which authenticates that personnel and laboratories performing the tests are qualified and the equipment and procedures to be used comply with applicable standards;

   iii. Procedures for scheduling and managing submittals, including those of subcontractors, off-Site fabricators, suppliers, and purchasing agents; and

iv. Reporting procedures including frequency of reports and report formats.

h. Specification of frequency of construction meetings with EPA and/or EPA's representatives

i. A stand-alone revised O&M Plan

The Settling Defendants shall submit an updated HSP for the Remedial Construction phase of the Work concurrently with each RAWP. The HSP shall address health and safety measures to be implemented and observed by construction personnel, as well as recommended health and safety measures for the adjacent community and general public, together with a description of the program for informing the community of these recommendations. The HSP shall include the name of the person responsible in the event of an emergency situation, as well as the necessary procedures that must be taken in the event of an emergency, as outlined in the Consent Decree;

B. Approval of Remedial Action Work Plan

EPA will either approve the draft RAWP(s) or require modifications in accordance with the procedures set forth in Section XI (EPA Approval of Plans, Reports, and Other Deliverables) of the Consent Decree. Following EPA approval, the draft RAWP(s) shall become the RAWP(s) and shall be incorporated into and become an enforceable part of the Consent Decree.

C. Performance of Remedial Construction

1. Within thirty (30) days after the approval of each RAWP by EPA, or such other period as EPA may approve, Settling Defendants shall initiate the remedial construction in accordance with each RAWP and approved Final RD Report.

2. During performance of the remedial construction, Settling Defendants may identify and request EPA approval for field changes to the approved RAWP and the approved Final RD Report and construction schedule, as necessary, to complete the work.

D. Operation and Maintenance Plan

1. Settling Defendants shall submit a stand-alone draft O&M Plan and implementation schedule with the RD Reports to EPA for review and approval pursuant to Section XI (EPA Approval of Plans, Reports, and Other Deliverables) of the Consent Decree. A stand alone revised O&M Plan shall be submitted with the draft RAWP(s) to EPA for review and approval pursuant to Section XI of the Consent Decree.

2. The O&M Plan(s) will be developed for the remedy including the in-situ groundwater treatment system(s) and the monitored natural attenuation well

network for the groundwater. The O&M Plan(s) shall be prepared in conformance with EPA guidelines contained in Considerations for Preparation of Operation and Maintenance Manuals, EPA 68-01-0341 and the "Remedial Design/Remedial Action Handbook," dated June, 1995 (OSWER 9355.0-4A), which includes, but is not limited to, a description of the personnel requirements, responsibilities, and duties, including discussion for training, lines of authority, sampling, analysis, and monitoring conducted under the Consent Decree.

3. Each O&M Plan shall include, at a minimum, the following:

a. An updated or amended QAPP if necessary;

b. An updated or amended HSP for O&M activities, if necessary;

c. A discussion of potential operating problems and remedies for such problems;

d. A discussion of alternative procedures in the event of system failure;

e. A schedule for equipment replacement; and

f. A monitoring schedule for wells in the Monitored Natural Attenuation network.

4. Proposed modifications of the approved O&M Plan(s) may be submitted to EPA for consideration upon completion of construction or thereafter if Settling Defendants can demonstrate that such considerations would enhance and/or maintain the treatment and/or environmental monitoring programs.

5. Once approved by EPA, the Settling Defendants shall implement the activities in the O&M Plan(s) in accordance with the schedule set forth therein. Once approved by EPA, the O&M Plan(s) shall be incorporated into and become an enforceable part of the Consent Decree.

XI. PRE-FINAL AND FINAL INSPECTIONS, REMEDIAL ACTION REPORTS, NOTICE OF CONSTRUCTION COMPLETION

A. Inspections

1. At least fourteen (14) days prior to the completion of construction, Settling Defendants and their contractor(s) shall be available to accompany EPA personnel and/or its representatives on a pre-final inspection. The pre-final inspection shall consist of a walkthrough of the construction areas to determine the completeness of the construction and its consistency with the RD Reports, the Consent Decree, the OU 3 ROD and applicable federal and state laws, rules, and regulations.

Following the pre-final inspection, EPA will either specify the necessary actions

to complete the construction phase of the Remedial Action, as appropriate, or determine that construction is complete. If EPA requires actions, Settling Defendants shall undertake such actions according to a schedule proposed by the Settling Defendants and approved by EPA. Within fourteen (14) days after completion of such actions, Settling Defendants and their contractor(s) shall be available to accompany EPA personnel and/or its representatives on an inspection as provided for in the preceding paragraph. Said inspection will be followed by further directions and/or notifications by EPA as provided in this paragraph.

B. Remedial Action Report

1. After a period of at least three (3) years following initiation of the in-situ groundwater treatment system operations and within ninety (90) days of notification by EPA that the report is to be submitted, Settling Defendants shall submit a draft RA Report (regarding remedial construction and initial O&M) to EPA for review and approval pursuant to Section XI (EPA Approval of Plans, Reports, and Other Deliverables) of the Consent Decree.

2. The draft RA Report shall include the following sections:

a. Introduction

i. A brief description of the location, size, environmental setting, and history of the Site.

ii. An outline of the regulatory and enforcement history of the Site.

iii. The major findings and results of remedial investigation activities.

iv. An outline of prior removal and remedial activities.

b. Background

i. Summarize requirements specified in the OU 3 ROD as to the deep and off-property contaminated groundwater. Include information on the cleanup goals, institutional controls, monitoring requirements, operation and maintenance requirements, and other parameters applicable to the design, construction, operation, and performance of the RA.

ii. Provide additional information regarding the basis for determining the cleanup goals, including planned future land use.

iii. Summarize the RD, including any significant regulatory or technical considerations or events occurring during the preparation of the RD.

iv. Identify and briefly discuss any ROD amendments, explanation of significant differences, or technical impracticability waivers.

c. Construction Activities

Provide a summary description of the activities undertaken to construct and implement the RA (e.g. mobilization and site preparatory work); construction of the in-situ groundwater treatment system and installation of the monitored natural attenuation well network; associated site work such as system operation and monitoring; and sampling activities.

d. Chronology of Events

i. Provide a tabular summary that lists the major events for the work completed by or on behalf of Settling Defendants and associated dates of those events, starting with the OU 3 ROD signature.

ii. Include significant milestones and dates, such as, remedial design submittal and approval; mobilization and construction of the remedy; significant operational, monitoring and sampling events, system modifications, operational down time, variance or noncompliance situations, and projected final shutdown or cessation of operations; sampling and confirmation-of-performance results; required inspections; construction demobilization; and continuation of operation and maintenance activities.

iii. Indicate when cleanup goals are projected to be achieved for the in-situ groundwater treatment system(s) and the monitored natural attenuation well network.

iv. Include milestones regarding implementation of Institutional Controls.

e. Performance Standards and Construction Quality Control

i. Describe the overall performance of the technologies in terms of comparison to cleanup goals.

ii. Provide an explanation of the approved construction quality assurance and construction quality control requirements or

cite the appropriate reference for this material. Explain any substantial problems or deviations.

iii. Provide an assessment of the performance data quality, including the overall quality of the analytical data, with a brief discussion of QA/QC procedures followed, use of a QAPP, comparison of analytical data quality objectives.

f. Inspection Certificates

i. Report the results of any inspection, and identify any deficiencies found.

ii. Briefly describe adherence to health and safety requirements while performing the RA. Explain any substantial problems or deviations.

iii. Summarize details of institutional controls (e.g. the type of institutional control implemented, who will maintain the control, and who will enforce the control).

iv. This section shall include a certification statement, signed by responsible corporate officials of the Settling Defendants' Supervising Contractor, which states the following:

"To the best of my knowledge, after thorough investigation, I certify that the information contained in or accompanying this submission is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

g. Continued Operation and Maintenance Activities

i. Describe the general activities for post-construction operation and maintenance activities, such as continued treatment operations, potential adjustments to treatment operations, monitoring, site maintenance, and closure activities.

ii. Identify potential problems or concerns with such activities.

iii. Describe the future monitoring and restoration activities.

h. Contact Information

Provide contact information (names, addresses, phone numbers,

and contract/reference data) for the major design and remediation contractors, as applicable.

3. EPA will either approve the draft RA Report, thus making it the Final RA Report, require modifications, or require corrective measures to fully and properly implement the RA as per Section XI (EPA Approval of Plans, Reports, and Other Deliverables) of the Consent Decree.

XII. PERFORMANCE STANDARDS AND AQUIFER RESTORATION

A. As set forth in the OU 3 ROD, the Performance Standards for the contaminated groundwater plume are the lower of the federal drinking water standards or the NJGWQSs. The Settling Defendants shall continue the RA, including the in-situ groundwater treatment system(s) and/or sampling of the monitored natural attenuation well network, until the Performance Standards have not been exceeded for a period of three (3) consecutive years, or a shorter period if approved by EPA in its sole discretion.

Settling Defendants may petition EPA in writing for authorization to amend the O&M Plans if, based on the results of the monitoring, the Settling Defendants believe that some or all of the Performance Standards specified in the OU 3 ROD will not be reached. The Settling Defendants shall not submit such a petition until they have performed O&M for the in-situ groundwater treatment system(s) and monitored natural attenuation well network for at least seven (7) years from the date of the RA report, unless EPA in its sole discretion approves a shorter time period. Such a petition shall include, at a minimum, the following information, as well as any other information and analyses EPA requests prior to or following submission of the petition:

1. a list identifying each Performance Standard that has not been met;

2. comprehensive in-situ groundwater treatment system and groundwater monitoring data relevant to the remedy implemented;

3. an analysis of the performance of the remedy which describes the spatial and temporal trends in groundwater contaminant concentrations within the area of in-situ groundwater treatment and monitored natural attenuation (e.g. whether contaminant migration has been effectively prevented), as well as any reduction or changes in the overall size or location of the area of in-situ groundwater treatment or groundwater contamination;

4. a description of any proposed contingency measures; and a predictive analysis of the approximate time frame required to achieve the Performance Standards with both the existing remediation action and that to be implemented with any proposed contingency measures using methods appropriate for the data and Site-specific conditions. Such analysis shall also address the uncertainty inherent in these predictions. The petition shall not be deemed complete until all

information and analyses required and/or requested by EPA are submitted by the Settling Defendants.

B. If Settling Defendants petition for authorization to amend the groundwater O&M Plan, Settling Defendants shall continue the RA including O&M activities according to EPA approved O&M Plan(s) until EPA directs Settling Defendants otherwise.

C. If, based on the results of the in-situ treatment system(s) or monitored natural attenuation monitoring, EPA believes that one or more of the Performance Standards specified in the OU 3 ROD will not be reached in a reasonable time period, and the Settling Defendants have not petitioned EPA in writing for authorization to amend the O&M Plan(s), EPA may require the Settling Defendants to implement contingency measures which may include Alternate In-situ Remedial Strategies, and to submit a Contingency Measures Plan (see Subparagraph D., below) in accordance with the procedures set forth in Section XI (EPA Approval of Plans, Reports, and Other Deliverables) of the Consent Decree.

D. A Contingency Measures Plan shall be submitted to EPA by the Settling Defendants within thirty (30) days of receipt of EPA's written determination that contingency measures are appropriate, or such longer period as EPA may approve. The Contingency Measures Plan shall include, at a minimum, the following:

1. a discussion of the design, construction, and O&M of the proposed Contingency Measures, as appropriate;

2. an updated QAPP and HSP for O&M activities, as necessary; and

3. a schedule for the implementation of the Contingency Measures.

E. EPA will review the Contingency Measures Plan pursuant to Section XI (EPA Approval of Plans, Reports, and Other Deliverables) of the Consent Decree.

F. Settling Defendants shall commence with the implementation of the Contingency Measures Plan within thirty (30) days of receipt of EPA's written approval of the Contingency Measures Plan or such longer period as EPA may approve.

XIII. POST REMEDIATION MONITORING AND NOTICE OF COMPLETION

A. POST REMEDIATION MONITORING PLAN

1. Within sixty (60) days of the date on which all designated in-situ groundwater treatment and monitored natural attenuation groundwater monitoring points have recorded readings less than or equal to the Performance Standards required by the OU 3 ROD, this SOW and the Consent Decree, for three full years (or a shorter period if approved by EPA in its sole discretion), or within thirty (30)

days of the date that EPA determines, in its sole discretion, that one or more ARAR waivers are granted and all other ARARs have been met and/or waived, Settling Defendants shall submit to EPA for review and approval pursuant to Section XI (EPA Approval of Plans, Reports, and Other Deliverables) of the Consent Decree, a Post Remediation Monitoring (PRM) Plan.

2. The PRM Plan shall include, at a minimum, the following:

a. An updated QAPP for PRM activities, as necessary;

b. An updated HSP for PRM activities, as necessary;

c. A description of work to be performed under PRM activities; and

d. A PRM schedule that identifies the frequency of monitoring and when these activities will commence.

3. Once approved by EPA the PRM Plan shall be incorporated into and become an enforceable part of the Consent Decree.

4. Within thirty (30) days of EPA's approval of the PRM Plan, Settling Defendants shall commence with the PRM program therein for a period of five (5) years, unless EPA in its sole discretion approves a shorter time period, in accordance with the PRM Plan, which includes the PRM schedule.

B. NOTICE OF COMPLETION AND FINAL REPORT FOR POST-REMEDIATION MONITORING

1. Within five (5) days of the completion of PRM, Settling Defendants shall submit to EPA a Notice of Completion for PRM.

2. Within sixty (60) days of the completion of PRM, Settling Defendants shall submit to EPA a Final Report for PRM. The Final Report for PRM shall summarize the Work performed under the PRM Plan and the data generated. Any modifications to the final Report for PRM required by EPA shall be in accordance with the procedures set forth in the Consent Decree.

3. EPA will determine whether the PRM activities or any portions(s) thereof have been completed in accordance with the standards, specifications, and reports required by the OU 3 ROD, this SOW, and the Consent Decree. If EPA determines that PRM activities have not been completed, EPA will notify the Settling Defendants in writing of those tasks which must be performed to complete the PRM. The Settling Defendants shall then implement the specified activities and tasks in accordance with the specifications and schedules established by EPA and shall then submit a further report on the specified activities and tasks, which shall be certified by a New Jersey registered professional engineer if such certification is necessary, within thirty (30) days after completion of the specified activities and tasks. EPA will notify the Settling

Defendants in writing when PRM activities have been completed in accordance with the requirements of the Consent Decree.

C. CERTIFICATION OF COMPLETION OF THE WORK

1. Within ninety (90) days after the Settling Defendants conclude that all phases of the Work have been fully performed, the Settling Defendants shall schedule and conduct a pre-certification inspection to be attended by the Settling Defendants, EPA and/or their representatives. If, after the pre-certification inspection, the Settling Defendants still believe that the Work has been fully performed, the Settling Defendants shall submit a written report, which submission shall be by a New Jersey registered professional engineer if necessary, stating that the Work has been completed in full satisfaction of the requirements of this SOW, the Consent Decree and the OU 3 ROD. Any modifications to the report required by EPA shall be pursuant to Section XI (EPA Approval of Plans, Reports, and Other Deliverables) the Consent Decree. If, after review of the written report, EPA, after reasonable opportunity for review and comment by the State, determines that any portion of the Work has not been completed in accordance with this SOW, the Consent Decree or the OU 3 ROD, EPA will notify the Settling Defendants in writing of the activities that must be undertaken by the Settling Defendants to complete the Work.

2. The Settling Defendants shall then implement the specified activities and tasks in accordance with the specifications and schedules established by EPA, and shall then submit a further report on the specified activities and tasks, which shall be certified by a New Jersey registered professional engineer if necessary, within thirty (30) days after completion of the specified activities and tasks.

3. If EPA concludes, based on the initial or any subsequent report requesting Certification of Completion by the Settling Defendants, and after a reasonable opportunity for review and comment by the State, that the Work has been performed in accordance with the Consent Decree, this SOW, and the OU 3 ROD, EPA will so notify the Settling Defendants in writing.

APPENDIX C

REFERENCE

1.) USGS 7.5 MINUTE WEEHAWKEN QUADRANGLE, NEW JERSEY – NEW YORK, DATE 1967, PHOTOREVISED 1981.

2000 0 2000
scale feet

SITE LOCATION MAP

APPENDIX D

PERFORMANCE GUARANTEE TRUST AGREEMENT

SCP Carlstadt Site
OU3 Remedy

Dated: _____ __, _____

This Performance Guarantee Trust Agreement (this "Agreement") is entered into as of _____, by and between the Settling Defendants under the Operable Unit Three Consent Decree in the case referred to below who have constituted themselves as the SCP Carlstadt Property Performing Parties Group, an unincorporated association consisting of the entities whose names and state of incorporation are set forth in Schedule A to this Agreement (collectively, the "Grantor"), and de maximis, inc., a corporation organized and existing under the laws of the State of Tennessee (the "Trustee").

Whereas, the United States Environmental Protection Agency ("EPA"), an agency of the United States federal government, and the Grantor have entered into a Consent Decree, United States of America v. Air Products and Chemicals, Inc., et al., Civil Action No. _____, District of New Jersey, for the performance of Operable Unit Three ("OU3") at the SCP Carlstadt Site (hereinafter the "Consent Decree");

Whereas, the Consent Decree provides that the Grantor shall provide assurance that funds will be available as and when needed for performance of the Work required by the Consent Decree;

Whereas, in order to provide such financial assurance, Grantor has agreed to establish and fund the trust created by this Agreement;

Whereas, the Grantor, acting through its duly authorized officers, has selected the Trustee to be the trustee under this Agreement, and the Trustee has agreed to act as trustee hereunder; and

Whereas, the Trustee is required to hold all Performance Guarantee Trust Fund monies in financial institution(s) that are regulated and examined by a U.S. federal or U.S. state agency;

Now, therefore, the Grantor and the Trustee agree as follows:

Section 1. Definitions. As used in this Agreement:

(a) The term "Beneficiary" shall have the meaning assigned thereto in Section 3 of this Agreement.

(b) The term "Business Day" means any day, other than a Saturday or a

Sunday, that banks are open for business in the State of New Jersey, USA.

(c) The term "Claim Certificate" shall have the meaning assigned thereto in Section 4(a) of this Agreement.

(d) The term "Fund" shall have the meaning assigned thereto in Section 3 of this Agreement.

(e) The term "Grantor" shall have the meaning assigned thereto in the first paragraph of this Agreement.

(f) The term "Objection Notice" shall have the meaning assigned thereto in Section 4(b) of this Agreement.

(g) The term "Site" shall have the meaning assigned thereto in Section 2 of this Agreement.

(h) The term "Trust" shall have the meaning assigned thereto in Section 3 of this Agreement.

(i) The term "Trustee" shall mean the trustee identified in the first paragraph of this Agreement, along with any successor trustee appointed pursuant to the terms of this Agreement.

(j) The term "Work" shall have the meaning assigned thereto in the Consent Decree.

Section 2. Identification of Facilities and Costs. This Agreement pertains to costs for Work required at the SCP Carlstadt Site in Bergen County, New Jersey (the "Site"), pursuant to the above referenced Consent Decree.

Section 3. Establishment of Trust Fund.

(a) The Grantor and the Trustee hereby establish a trust (the "Trust"), for the benefit of EPA (the "Beneficiary"), to pay for the Work and/or to assure that funds are available to pay for performance of the Work in the event that Grantor fails to conduct or complete the Work required by, and in accordance with the terms of, the Consent Decree. The Grantor and the Trustee intend that no third party shall have access to monies or other property in the Trust except as expressly provided herein.

(b) The Trust is established initially as consisting of funds in the amount of three million two hundred thousand U.S. Dollars ($3,200,000) (the "Initial Payment"). This Initial Payment shall be deposited by the Grantor into the Trust within 45 days of the Effective Date of the Consent Decree ("Effective Date").

Within three years from the Effective Date, a second payment of two million one hundred thirty thousand U.S. Dollars ($2,130,000) (the "Second Payment") shall be deposited by the Grantor into the Trust.

Within six years from the Effective Date, a third payment of two million five hundred thousand U.S. Dollars ($2,500,000) (the "Third Payment") shall be deposited by the Grantor into the Trust.

The Initial, Second and Third Payments hereunder total $7,830,000, the amount of the initially established performance guarantee stated in Paragraph 43 of the Consent Decree.

If any payment pursuant to Section 4 reduces the balance of the Trust below $650,000 at any time within six years from the Effective Date, then no later than thirty (30) days after such payment pursuant to Section 4 the Grantor shall deposit into the Trust additional funds sufficient to bring the Fund balance up to at least $1,300,000. The amount of any such deposit made to replenish the Trust may be deducted from the next payment due to the Trust pursuant to this Section 3(b).

If, following six years from the Effective Date and prior to the Certification of Completion of the Work pursuant to Paragraph 49(c) of the Consent Decree, any payment pursuant to Section 4 reduces the balance of the Trust below $250,000, then no later than thirty (30) days after such payment pursuant to Section 4 the Grantor shall deposit into the Trust additional funds sufficient to bring the Fund balance up to at least $500,000.

The timing or the amount of all payments other than the Initial Payment and the Second Payment may be modified pursuant to Paragraph 46 and/or Paragraph 48 of the Consent Decree. The Trustee shall be notified in writing by Grantor's representative of any such modification of timing or payment amounts.

(c) Such funds, along with any other monies and/or other property hereafter deposited into the Trust, and together with all earnings and profits thereon, are referred to herein collectively as the "Fund." The Fund shall be held by the Trustee, IN TRUST, as hereinafter provided. The Trustee shall not be responsible nor shall it undertake any responsibility for the amount or adequacy of, nor any duty to collect from the Grantor, any payments necessary to discharge any liabilities of the Grantor owed to the United States.

Section 4. Payment for Work Required Under the Consent Decree. The Trustee shall make payments from the Fund in accordance with the following procedures.

(a) From time to time, the Grantor and/or its representatives or contractors may request that the Trustee make payment from the Fund for Work performed under the Consent Decree by delivering to the Trustee and EPA a written invoice and certificate (together, a "Claim Certificate") signed by an officer of the Grantor (or the relevant representative or contractor) and certifying:

(i) that the invoice is for Work performed at the Site in accordance with the Consent Decree;

(ii) a description of the Work that has been performed, the amount

of the claim, and the identity of the payee(s); and

(iii) that the Grantor has sent copies of such Claim Certificate to EPA, both to the EPA attorney and the EPA RPM at their respective addresses shown in this Agreement, the dates on which such copies were sent, and the date on which such copies were received by EPA as evidenced by return receipts (which return receipt may be written, as in the case of overnight delivery, certified mail, or other similar delivery methods, or electronic, as in the case of e-mail, facsimile, or other similar delivery methods).

(b) EPA may object to any payment requested in a Claim Certificate submitted by the Grantor (or its representatives or contractors), in whole or in part, by delivering to the Trustee a written notice (an "Objection Notice") within thirty (30) days after the date of EPA's receipt of the Claim Certificate as shown on the relevant return receipt. An Objection Notice sent by EPA shall state (i) whether EPA objects to all or only part of the payment requested in the relevant Claim Certificate; (ii) the basis for such objection, (iii) that EPA has sent a copy of such Objection Notice to the Grantor and the date on which such copy was sent; and (iv) the portion of the payment requested in the Claim Certificate, if any, which is not objected to by EPA, which undisputed portion the Trustee shall proceed to distribute in accordance with Section 4(d) below. EPA may object to a request for payment contained in a Claim Certificate only on the grounds that the requested payment is either (x) not for the costs of Work under the Consent Decree or (y) otherwise inconsistent with the terms and conditions of the Consent Decree.

(c) If the Trustee receives a Claim Certificate and does not receive an Objection Notice from EPA within the time period specified in Section 4(b) above, the Trustee shall, after the expiration of such time period, promptly make the payment from the Fund requested in such Claim Certificate.

(d) If the Trustee receives a Claim Certificate and also receives an Objection Notice from EPA within the time period specified in Section 4(b) above, but which Objection Notice objects to only a portion of the requested payment, the Trustee shall, after the expiration of such time period, promptly make payment from the Fund of the uncontested amount as requested in the Claim Certificate. The Trustee shall not make any payment from the Fund for the portion of the requested payment to which EPA has objected in its Objection Notice.

(e) If the Trustee receives a Claim Certificate and also receives an Objection Notice from EPA within the time period specified in Section 4(b) above, which Objection Notice objects to all of the requested payment, the Trustee shall not make any payment from the Fund for amounts requested in such Claim Certificate.

(f) If, at any time during the term of this Agreement, EPA implements a "Work Takeover" pursuant to the terms of the Consent Decree and intends to direct payment of monies from the Fund to pay for performance of Work during the period of such Work

Takeover, EPA shall notify the Trustee in writing of EPA's commencement of such Work Takeover. Upon receiving such written notice from EPA, the disbursement procedures set forth in Sections 4(a)-(e) above shall immediately be suspended, and the Trustee shall thereafter make payments from the Fund only to such person or persons as the EPA may direct in writing from time to time for the sole purpose of providing payment for performance of Work required by the Consent Decree. Further, after receiving such written notice from EPA, the Trustee shall not make any disbursements from the Fund at the request of the Grantor, including its representatives and/or contractors, or of any other person except at the express written direction of EPA. If EPA ceases such a Work Takeover in accordance with the terms of the Consent Decree, EPA shall so notify the Trustee in writing and, upon the Trustee's receipt of such notice, the disbursement procedures specified in Sections 4(a)-(e) above shall be reinstated.

(g) While this Agreement is in effect, disbursements from the Fund are governed exclusively by the express terms of this Agreement.

Section 5. Trust Management. The Trustee shall invest and reinvest the principal and income of the Fund and keep the Fund invested as a single fund, without distinction between principal and income, in accordance with directions which the Grantor may communicate in writing to the Trustee from time to time, except that:

(a) securities, notes, and other obligations of any person or entity shall not be acquired or held by the Trustee with monies comprising the Fund, unless they are securities, notes, or other obligations of the U.S. federal government or any U.S. state government or as otherwise permitted in writing by the EPA;

(b) the Trustee is authorized to invest the Fund in time or demand deposits of approved financial institutions, to the extent such deposits are insured by an agency of the U.S. federal or any U.S. state government; and

(c) the Trustee is authorized to hold cash awaiting investment or distribution uninvested for a reasonable time and without liability for the payment of interest thereon.

Section 6. Commingling and Investment. The Trustee is expressly authorized in its discretion to transfer from time to time any or all of the assets of the Fund to any common, commingled, or collective trust fund created by the Trustee in which the Fund is eligible to participate, subject to all of the provisions hereof and thereof, to be commingled with the assets of other trusts participating therein.

Section 7. Express Powers of Trustee. Without in any way limiting the powers and discretion conferred upon the Trustee by the other provisions of this Agreement or by law, the Trustee is expressly authorized and empowered:

(a) to make, execute, acknowledge, and deliver any and all documents of transfer and conveyance and any and all other instruments that may be necessary or appropriate to carry out the powers herein granted;

(b) to register any securities held in the Fund in its own name or in the name of a nominee and to hold any security in bearer form or in book entry, or to combine certificates representing such securities with certificates of the same issue held by the Trustee in other fiduciary capacities, or to deposit or arrange for the deposit of such securities in a qualified central depositary even though, when so deposited, such securities may be merged and held in bulk in the name of the nominee of such depositary with other securities deposited therein by another person, or to deposit or arrange for the deposit of any securities issued by the U.S. federal government or any U.S. state government, or any agency or instrumentality thereof, with a Federal Reserve bank, but the books and records of the Trustee shall at all times show that all such securities are part of the Fund; and

(c) to deposit any cash in the Fund in interest-bearing accounts maintained or savings certificates issued by approved financial institutions, to the extent insured by an agency of the U.S. federal government.

Section 8. Taxes and Expenses. All taxes of any kind that may be assessed or levied against or in respect of the Fund shall be paid from the Fund. All other expenses and charges incurred by the Trustee in connection with the administration of the Fund and this Trust shall be paid by the Grantor.

Section 9. Annual Valuation. (a) The Trustee shall annually, no more than thirty (30) days after the anniversary date of establishment of the Fund, furnish to the Grantor and to the Beneficiary a statement confirming the value of the Trust. Any securities in the Fund shall be valued at market value as of no more than 60 days prior to the anniversary date of establishment of the Fund. The annual valuation shall include an accounting of any fees or expenses levied against the Fund. The Trustee shall also provide such information concerning the Fund and this Trust as EPA may request from time to time.

(b) Grantor and/or any of its constituent members shall have a right, upon fifteen (15) days notice to the Trustee, to audit the Trust and Fund at any time during the life of the Trust. Any expenses and charges incurred by the Trustee in connection with such audit(s) shall not be paid from the Fund, but shall be paid by the Grantor (or any of its constituent members) in accordance with Section 8.

Section 10. Advice of Counsel. The Trustee may from time to time consult with counsel with respect to any question arising as to the construction of this Agreement or any action to be taken hereunder; provided, however, that any counsel retained by the Trustee for such purposes may not, during the period of its representation of the Trustee, serve as counsel to the Grantor.

Section 11. Trustee Compensation. The Trustee shall be entitled to reasonable compensation for its services as agreed upon in writing with the Grantor and as notified in writing to the Beneficiary.

Section 12. Trustee and Successor Trustee. The Trustee and any replacement Trustee must be approved in writing by EPA and must not be affiliated with the

Grantor. The Trustee may resign or the Grantor may replace the Trustee, but such resignation or replacement shall not be effective until the Grantor has appointed a successor trustee approved in writing by EPA and this successor accepts such appointment. The successor trustee shall have the same powers and duties as those conferred upon the Trustee hereunder. Upon the successor trustee's acceptance of the appointment, the Trustee shall assign, transfer, and pay over to the successor trustee the funds and properties then constituting the Fund. If for any reason the Grantor cannot or does not act in the event of the resignation of the Trustee, the Trustee may apply to EPA or a court of competent jurisdiction for the appointment of a successor trustee or for instructions. The successor trustee shall specify the date on which it assumes administration of the Fund and the Trust in a writing sent to the Grantor, the Beneficiary, and the present Trustee by certified mail no less than 10 days before such change becomes effective. Any expenses incurred by the Trustee as a result of any of the acts contemplated by this Section shall be paid as provided in Section 8.

Section 13. Instructions to the Trustee. All instructions to the Trustee shall be in writing, signed by such persons as are empowered to act on behalf of the entity giving such instructions. The Trustee shall be fully protected in acting without inquiry on such written instructions given in accordance with the terms of this Agreement. The Trustee shall have no duty to act in the absence of such written instructions, except as expressly provided for herein.

Section 14. Amendment of Agreement. This Agreement may be amended only by an instrument in writing executed by the Grantor and the Trustee, and with the prior written consent of EPA.

Section 15. Irrevocability and Termination. This Trust shall be irrevocable and shall continue until terminated upon the earlier to occur of (a) the written direction of EPA to terminate, consistent with the terms of the Consent Decree and (b) the complete exhaustion of the Fund comprising the Trust as certified in writing by the Trustee to EPA and the Grantor. Upon termination of the Trust pursuant to Section 15(a), all remaining trust property (if any), less final trust administration expenses, shall be delivered to the Grantor.

Section 16. Immunity and Indemnification. The Trustee shall not incur personal liability of any nature in connection with any act or omission, made in good faith, in the administration of this Trust, or in carrying out any directions by the Grantor or the EPA issued in accordance with this Agreement. The Trustee shall be indemnified and saved harmless by the Grantor from and against any personal liability to which the Trustee may be subjected by reason of any act or conduct made by the Trustee in its official capacity, including all expenses reasonably incurred in its defense in the event the Grantor fails to provide such defense.

Section 17. Choice of Law. This Agreement shall be administered, construed, and enforced according to the laws of the State of New Jersey.

Section 18. Interpretation. As used in this Agreement, words in the singular include the plural and words in the plural include the singular. The descriptive headings for each Section of this Agreement shall not affect the interpretation or the legal efficacy of this Agreement.

Section 19. Notices. All notices and other communications given under this agreement shall be in writing and shall be addressed to the parties as follows or to such other address as the parties shall by written notice designate:

(a) If to the Grantor, to:

William L. Warren, Esq.
Drinker Biddle & Reath
105 College Road East, Suite 300
P.O. Box 627
Princeton, N.J. 08542-0627
(P) (609) 716-6603
(F) (609) 799-7000
william.warren@dbr.com

(b) If to the Trustee, to:

R. Thomas Dorsey
de maximis, inc.
450 Montbrook Lane
Knoxville, TN 37919
(P) (865) 691-5052
(F) (865) 691-6485
Tom@demaximis.com

(c) If to EPA, to:

New Jersey Remediation Branch
Emergency and Remedial Response Division
U.S. Environmental Protection Agency
290 Broadway, 19th Floor
New York, NY 10007-1866
Attn: Remedial Project Manager – Scientific Chemical Processing Superfund Site, Carlstadt, N.J.

and

New Jersey Superfund Branch
Office of Regional Counsel
U.S. Environmental Protection Agency
290 Broadway, 17th Floor
New York, N.Y. 10007-1866
Attn: Site Attorney – Scientific Chemical Processing Superfund Site, Carlstadt, N.J.

Section 20. Method of Execution. This Agreement may be executed in counterparts, each of which shall be deemed an original, but all of which shall constitute one and the same instrument.

[Remainder of page left blank intentionally.]

In Witness Whereof, the parties hereto have caused this Agreement to be executed by their respective officers duly authorized and attested as of the date first above written:

GRANTOR

_____

By:
As _____, with express authority from each of the Grantor Entities identified in Schedule A to the Trust Agreement

State of _____
County of _____

On this _____, before me personally came _____, to me known, who, being by me duly sworn, did depose and say that she/he is the duly authorized representative of the Grantor described in the above instrument; and that she/he signed her/his name thereto in such capacity with full authority from the Grantor.

_____
Notary Public

TRUSTEE

_____
Name:
Title:
de maximis, inc.

State of _____
County of _____

On this _____, before me personally came _____, to me known, who, being by me duly sworn, did depose and say that she/he is _____ of de maximis, inc., the corporation described in and which executed the above instrument; and that she/he signed her/his name thereto.

_____
Notary Public

Schedule A to Performance Guarantee Trust Agreement

SCP Carlstadt Property Performing Parties Group

Name	State of Incorporation

APPENDIX E

List of Settling Defendants - OU-3 Consent Decree

Scientific Chemical Processing NPL Superfund Site

216 Paterson Plank Rd, Carlstadt, NJ.

September 18, 2013

1. Air Products and Chemicals, Inc.
2. Akzo Nobel Coatings, Inc.
3. Alcatel-Lucent USA Inc., formerly known as Lucent Technologies Inc., as successor in interest to and on behalf of Western Electric Company, Inc.; AT&T Corp.; and AT&T Technologies, Inc.
4. ARKEMA INC., f/n/a ATOFINA Chemicals, Inc., for its predecessors Pennwalt Corporation and M&T Chemicals, Inc.
5. Ashland Inc. on behalf of itself and its wholly owned subsidiary ISP Environmental Services, Inc.
6. Avantor Performance Materials, Inc. f/k/a Mallinckrodt Baker, Inc. f/k/a J.T. Baker Chemical Company
7. Avery Dennison Corporation (Successor to PAXAR Americas LLC)
8. BASF Corporation, on its own behalf, and as successor to the former Ciba Corporation
9. Benjamin Moore & Co. (for itself and as successor to the former Technical Coating Co.)
10. Ber Mar Manufacturing Corp.
11. Bristol-Myers Squibb Company, successor to E. R. Squibb & Sons, Inc.
12. Browning-Ferris Industries of New Jersey, Inc. for itself and for CECOS International, Inc. and Browning-Ferris Industries of New York, Inc. as successor by merger to Newco Waste Systems, Inc.
13. CBS Corporation, formerly known as Viacom Inc., successor in interest to CBS Inc.
14. Chemcoat Inc.
15. CNA Holdings LLC (formerly American Hoechst Corporation merged into Celanese Corporation, now known as CNA Holdings LLC)
16. Continental Holdings Inc. (as successor in interest for certain limited purposes to Continental Can Company, Inc.)
17. Cycle Chem, Inc.

APPENDIX E

List of Settling Defendants - OU-3 Consent Decree

Scientific Chemical Processing NPL Superfund Site

216 Paterson Plank Rd, Carlstadt, NJ.

September 18, 2013

18. Cytec Industries, Inc. as Indemnitor for Wyeth Holdings Corp., formerly known as American Cyanamid Company (on behalf of itself and its former subsidiaries Lederle Labs and Shulton, Inc.)
19. Dri-Print Foils, Inc.
20. E. I. du Pont de Nemours and Company
21. Exxon Mobil Corporation/ExxonMobil Oil Corporation
22. General Electric Company, for itself and as successor to and for Radio Corporation of America (RCA)
23. GlaxoSmithKline, LLC (as successor to SmithKline Beecham Corporation)
24. Goodrich Corporation, a UTC Aerospace Systems Company, on behalf of Monroe Chemical, Inc.
25. HCR ManorCare, Inc., for itself and on behalf of Manor Care of America, Inc., ManorCare Health Services, Inc. (f/k/a Manor Healthcare Corp.), and Portfolio One, Inc. (f/k/a and successor in interest to Chemlime, Inc., and Almo Anti Pollution, Inc.)
26. Hoffmann-La Roche Inc.
27. John L. Armitage & Co.
28. Johnson & Johnson, on behalf of itself and Permacel, Inc., its former subsidiary
29. Kirker Enterprises, Inc. on behalf of itself and as successor to Decorative Industries, Inc.
30. L.E. Carpenter & Company
31. LANXESS Corporation as successor in interest for this matter only to Bayer Chemicals Corporation
32. Mack Trucks, Inc.
33. Merck & Co., Inc.
34. Momentive Specialty Chemicals Inc. (f/k/a Hexion Specialty Chemicals, Inc.), successor to Borden Chemicals, Inc. (for Borden Fabric Leather & Borden, Inc.)
35. Nepera, Inc.

APPENDIX E

List of Settling Defendants - OU-3 Consent Decree
Scientific Chemical Processing NPL Superfund Site
216 Paterson Plank Rd, Carlstadt, NJ.

September 18, 2013

36. New England Laminates Co., Inc.
37. Northrop Grumman Systems Corporation, successor, for itself and on behalf of Grumman Corporation
38. Northrop Grumman Systems Corporation, successor, for itself and on behalf of Litton Industries, Inc./Fitchburg Coated Products
39. Occidental Chemical Corporation (as a successor to Diamond Shamrock Chemicals Company)
40. Pan Technology, Inc.
41. Permacel
42. Pfizer Inc
43. Pharmacia LLC (Pharmacia Corporation (f/k/a Monsanto Company) converted to a limited liability company)
44. Revlon Consumer Products Corporation for itself and as a successor in interest to Revlon, Inc.
45. Rohm and Haas Company
46. Rohm and Hass Company (for Bee Chemical Company share)
47. Seagrave Coatings Corp. (NJ), formerly Chemray Coatings Corp.
48. SI Group, Inc. (formerly known as Schenectady International, Inc., and Schenectady Chemicals, Inc.)
49. Siegfried (USA), Inc. (Successor in interest to Ganes Chemicals, Inc.)
50. Simon Wrecking Company, Inc., Simon Resources, Inc. and Mid State Trading Co.
51. The Dow Chemical Company
52. The Warner Lambert Co., LLC a wholly owned subsidiary of Pfizer Inc.
53. 3M Company
54. Trane U.S., Inc. (f/k/a American Standard, Inc.)
55. Union Carbide Corporation

APPENDIX E

List of Settling Defendants - OU-3 Consent Decree

Scientific Chemical Processing NPL Superfund Site

216 Paterson Plank Rd, Carlstadt, NJ.

September 18, 2013

56. United Technologies Corporation, on behalf of Inmont Corporation

57. Veolia ES Technical Solutions, L.L.C., as successor in interest to Marisol, Incorporated